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ORNITHOLOGICAL SOCIETY OF THE MIDDLE EAST
THE CAUCASUS AND CENTRAL ASIA



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Photo above: Pale Crag Martin *Ptyonoprogne obsoleta* Jebel Al-Lawz, Tabuk province, Saudi Arabia, 6 October 2017. © Jem Babbington

Cover photo: Arabian Spotted Eagle Owl *Bubo (africanus) milesi*, Salalah, Oman, 18 August 2018. © Gavin Farnell

Summer observations of Lesser White-fronted Goose *Anser erythropus* and Spur-winged Lapwing *Vanellus spinosus* in Armenia

KAREN AGHABABYAN

LESSER WHITE-FRONTED GOOSE *Anser erythropus*

The species was first found in Armenia in 1984 (Adamian & Klem 1999). Later, the species was recorded in the country in 1986, 1991, and 1995; all of the records have been made in late autumn (November), winter (December and January), or early spring (March) indicating migratory or wintering birds. In 2018, two birds together were observed at Gull island, lake Sevan, in early summer: 5th June (Vahram Petrosyan, Plate 1), 7th June (Anush Khachatryan) and 11th June by the author. Those dates are late for migratory birds, as usually they arrive at breeding grounds early May (Snow & Perrins 1998) to late June (Madsen 1996). The area where the two were observed is located at the core zone of lake Sevan national park (with a strict protection regime). The place is an island with a conglomeration of boulders, partly covered by sea-buckthorn *Hippophae rhamnoides* bushes. Potentially, the site could be used by the Lesser White-fronted Goose as a breeding habitat, since it resembles some other breeding sites of the species with rocks or prominent hummocks and nests hidden amongst vegetation (Madsen 1996). There were no other indications of breeding. Further monitoring of the two should be undertaken.



Plate 1. Two Lesser White-fronted Geese *Anser erythropus* at Gull island, lake Sevan, Armenia. © Vahram Petrosyan

SPUR-WINGED PLOVER *Vanellus spinosus*

The species was first recorded in Armenia in 1995 (Adamian & Klem 1999). After, there have been several records. Starting from 2016 the number of records of the species has increased. In 2016 two birds were observed at Armash wetlands, Armenia, 18th April (Adrian Jordi). In 2017 the species was observed twice in Armash wetlands, one bird 23rd April (Han Blankert) and two 30th April (Hasmik Ter-Voskanyan). In 2018 the number of Spur-winged Plover records in Armash wetlands increased significantly: one bird 25th February (Vahram Petrosyan), one bird 14th April (group from Armenian Birdwatching Association), one bird 6th May (author, Plate 2), two birds together on 7th May (Artem Muradkhanyan), one bird 22nd May (group of British birdwatchers), one bird on 2nd and 3rd June (author). The records appear to be quite late for migratory birds, thus in nearby countries the beginning of breeding occurs April–June (Kirwan *et al* 2008, Wiersma & Kirwan 2018). Otherwise no breeding indications have been observed. Their appearance in Armenia could be the result of various reasons *eg* the species is dispersing from places where it has recently increased. In Cyprus there were 10 pairs estimated in 2003 but 61–68 pairs in 2009 (Charalambidou *et al* 2012). Whatever the reasons are, the species can obviously occur in Armenia in late spring and early summer.

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Plate 2. Spur-winged Lapwing *Vanellus spinosus* in Armash wetlands, Armenia, 6 May 2018. © Karen Aghababyan

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Recent counts of White-headed Ducks *Oxyura leucocephala* in Armash wetlands, Armenia

KAREN AGHABABYAN

The White-headed Duck *Oxyura leucocephala* is a globally threatened species, included in the IUCN Red List (BirdLife International 2017) and the Armenian Red Book (Aghasyan & Kalashyan 2010). In the past (Dahl 1954), the species commonly inhabited lake Sevan, Armenia, and its vicinity. However in the 1930s, due to decrease of the water level of lake Sevan and complete drainage of the adjacent Gilli marshes, it disappeared from the area. Later, after the establishment of the Armash carp farm in 1972, the White-headed Duck was found in its ponds, and it started breeding there (Adamian & Klem 1999). Recent estimation of the White-headed Duck's population in Armenia, suggested 15–20 breeding pairs (Sheldon *et al* 2017, Armenian Bird Census Council 2017). Our latest survey of the White-headed Duck population in Armash wetlands was conducted 6 April–3 June 2018 using timed counts from fixed points. During the survey eight ponds with a total area of 8 km² were examined. The survey recorded 12 males in breeding plumage, two females and five ducklings at one of the ponds (Plate 1). The birds were found in four groups in different parts of the pond: five males were together with a female and five ducklings, three other males together, two other males together with one female, and the last group consisted of two males. According to the available data in the National Armenian Database (TSE NGO) and the database of Armenia at observation.org (Observation International Foundation), this is the highest number of adult male White-headed Ducks observed at one place in Armenia during the last ten years, although there is no certainty that all of them were breeding. Further monitoring is required to understand the real number of breeding pairs and whether there is a real population increase.



Plate 1. White-headed Ducks *Oxyura leucocephala* with ducklings, Armash carp farm, Armash wetlands, Armenia.
© Karen Aghababyan

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The monitoring of White-headed Ducks in Armenia is supported by the European Bird Census Council (European Breeding Bird Atlas 2), the Whitley Fund for Nature and by volunteers of the Armenian Birdwatching Association.

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Use of the municipal dump site on Masirah island, Oman by Egyptian Vultures *Neophron percnopterus*, 2013–2018

G AL FARSI, J AL ARAIMI, J AL HUMAIDI, A AL BULUSHI, M SARROUF WILLSON, M MCGRADY & M K OLI

Masirah island, Oman holds one of the densest populations of breeding endangered Egyptian Vultures *Neophron percnopterus* in the world. Counts of Egyptian Vultures were made at the Masirah island municipal dump site during January 2013–March 2018. The average mean monthly number of vultures counted was 39.87 ± 2.22 (N=61, range: 13–82); the ratio of non-adult to adult vultures was 0.7 ± 0.08 . Counts of vultures at the dump were highly variable, and no annual patterns of dumpsite use by adults, non-adults or vultures of all ages were found. Data suggest that numbers of vultures using the dump peaked in 2015–2016, and that numbers in 2018 were similar to those in 2013. This apparent recent decline in vulture use of the dump could be the result of a declining resident population or the changes in vulture foraging, reflecting the fact that vultures are highly adapted to cope with changes in food availability. Repeating past surveys for breeding vultures and other ecological field research could shed light on the current status and ecology of Egyptian Vultures on Masirah island, help develop counts at the dump site as a means for monitoring the population, and help understand the potential effects of the ongoing national upgrade of waste management in Oman on vultures and other avian scavengers.

INTRODUCTION

Monitoring populations of endangered species is important so that changes in abundance can be detected and timely conservation activities undertaken, if necessary (Yoccoz *et al* 2001, Buckland *et al* 2005, Nichols & Williams 2007). Monitoring can also provide information regarding the relative importance of the monitored population at regional and global scales.

The Egyptian Vulture *Neophron percnopterus* is a globally endangered (BirdLife International 2018) obligate scavenger that feeds on small food items, including anthropogenic waste (Botha *et al* 2017). Indeed, in much of its wide distribution, Egyptian Vultures are commensal/mutualistic with humans (Gangoso *et al* 2013, Henriques *et al* 2018), and are often found at rubbish dumps, abattoirs, and temporary settlements of nomadic and semi-nomadic human communities. While Egyptian Vultures can benefit from anthropogenic waste, toxic waste can be harmful. For this reason modern waste management can be beneficial to vultures, even if it reduces the overall amount of available food. Egyptian Vultures, like other avian scavengers, provide important ecological services that benefit humans. By consuming biological waste, vultures hinder the spread of diseases that might afflict humans and livestock.

There is evidence that the published estimate of 100 pairs of resident Egyptian Vultures in Oman (Jennings 2010) may be out of date due to population growth (Meyburg *et al* In press). The breeding population on Masirah island, Oman had been estimated at 12 pairs (Griffiths & Rogers 1975, Rogers 1988). However, results of a single-year survey estimated there to be 65–80 breeding pairs, making it the second densest population in the world after Socotra island, Yemen (Al Bulushi *et al* 2013, Angelov *et al* 2013). Further, all 12 adult Egyptian Vultures caught in winter 2017–2018 at a landfill in Oman did not migrate (Meyburg *et al* In press; <https://egyptianvultureoman.blogspot.com/>), suggesting that a large proportion of vultures seen at waste disposal sites in Oman during the winter (Eriksen & Victor 2013, Al Fazari & McGrady 2016) is resident.

In recognition of the importance of the population of Egyptian Vultures on the island, the Environment Society of Oman (ESO) initiated regular counts of scavenging birds at

the main rubbish dump. Because the population is relatively unstudied, these counts can provide important baseline data, and establish a simple, repeatable process for monitoring that population. Here, we provide a detailed analysis of the Egyptian Vulture counts obtained during 2013–2018. While not all Egyptian Vultures on the island visit the dump site on a daily or maybe even an annual basis, counts there can serve as an index of Egyptian Vulture abundance and age composition. The effort also helped develop bird identification and survey skills in ESO field assistants, whose main tasks focus on marine turtles.

STUDY AREA AND METHODS

Study area

Masirah island is located ≈ 15 km offshore of mainland Oman in the Arabian sea at 20.4° N, 58.8° E. The Masirah island municipal dump site (MMDS) is in the northern part of the island at 20.57° N, 58.88° E (Figure 1), and is attractive to Egyptian Vultures and other scavengers (eg gulls). The fenced area of the MMDS covers ≈ 16 ha, but most dumping of organic matter occurred in a rather ad hoc fashion within ≈ 2 –3 ha.

Field methods

We counted and aged all Egyptian Vultures scavenging at the dump site every month during January 2013–March 2018, except August and November 2014. Vultures were



Figure 1. Map showing location of Masirah municipal dump site, which was ‘closed’ June 2018. Since then, most waste that might be consumed by vultures has been gathered at a nearby transfer station and trucked to Tahwa, the site of the modern engineered landfill some 200 km to the north on the mainland.

classified as either 'adult' (≥ 4 yrs old) or 'non-adult' (subadult/juvenile, < 4 yrs old) based on plumage (Clark & Schmitt 1998).

Counts were made by 1–3 observers, mostly from two vantage points (20.576° N 58.890° E; 20.569° N 58.880° E), which together gave a view of the entire dump site. Although close enough to make counts and determine the age of birds, our presence did not disturb birds at the site. A few birds were sometimes observed while observers moved between vantage points, and these were added to the total.

We attempted to count all Egyptian Vultures that were present at the dump site during our visits, even Egyptian Vultures that were very distant. At least two counts (*ie* 'daily counts') occurred each month (at least one in the morning and one afternoon), but if time allowed more counts were made. Because some morning and afternoon counts occurred on a single day, and were therefore not independent, we used the maximum count made on any given day, for our analyses ('Statistical analysis' below).

Although the active dumping area being used by vultures was small, birds moved around the site during our counts, and piles of rubbish could obscure our views. Despite our attempts to avoid it, some low level of double counting individuals probably occurred, and some individuals went uncounted. Because of this, the numbers we report should be interpreted as an index (and not an estimate) of Egyptian Vultures using the site.

During counts, birds were perching, walking through the rubbish and flying at different distances from the observer(s). To improve count accuracy, multiple (typically 2–3) counts were made at each vantage point until consistency in count values was achieved. When multiple observers made counts, they counted independently, then conferred to ensure that the maximum number of birds was recorded. The duration of observation bouts at individual vantage points was ≈ 10 –20 minutes, but varied depending upon the number of birds. This meant that it took about 1–1.5 h to complete the count, including travel time between vantage points.

We recorded the total number of birds observed per age class, and classified the months of August–September as 'non-breeding' or 'winter', and January–July as 'breeding' or 'summer'. From limited data from Masirah island it seems that most breeding by Egyptian Vultures occurs in the spring (many start incubating in February), but that some lay eggs as early as October (Angelov & Yotsova 2012).

Statistical analysis

Using maximum daily counts when > 1 counts were made per day, we calculated the mean number of vultures counted each month of the study. These mean monthly counts (hereafter, monthly counts) were assumed to be independent, and were used for statistical analyses. Analyses aimed at examining annual variation in vulture use of the site excluded data from 2018, when data were collected January–March only. We used linear models (Agresti 2015) to test for (1) linear and quadratic trend; (2) monthly variation, and (3) annual variation in mean monthly counts of Egyptian Vultures. All statistical analyses were performed in the R computing environment (R Core Team 2017).

RESULTS

A total of 204 counts were made during the study period, 98 in the morning and 106 in the afternoon. Eighty-eight daily maximum counts (23 morning, 65 afternoon) were used in our analyses.

Overall the average monthly count of Egyptian Vultures at the rubbish dump was 39.87 ± 2.22 ($N=61$, Median=36, Min=13, Max=82; Table 1). Tests for linear and quadratic trends in average monthly counts were highly significant (Table 2A). There was no evidence that

Table 1. Average mean monthly counts of Egyptian Vultures at the Masirah Municipal Dump Site January 2013–March 2018.

Month	N	Mean	Median	SE	Min	Max
Jan	6	30.7	28.2	4.7	20	51
Feb	6	36.3	39.5	3.81	23	46
Mar	6	38.9	39.5	5.68	17	55.5
Apr	5	36.6	24.5	11.3	15	79
May	5	39.1	32	10.8	23	81.5
Jun	5	44.9	37	9.23	24	70.5
Jul	5	47.8	51	11.9	13	82
Aug	4	45.9	48.8	9.13	21	65
Sep	5	41.6	41	7.24	22	66
Oct	5	35.8	36	5.24	21	50
Nov	4	47.8	46.8	10.4	29.5	68
Dec	5	38.5	28	7.58	24	62

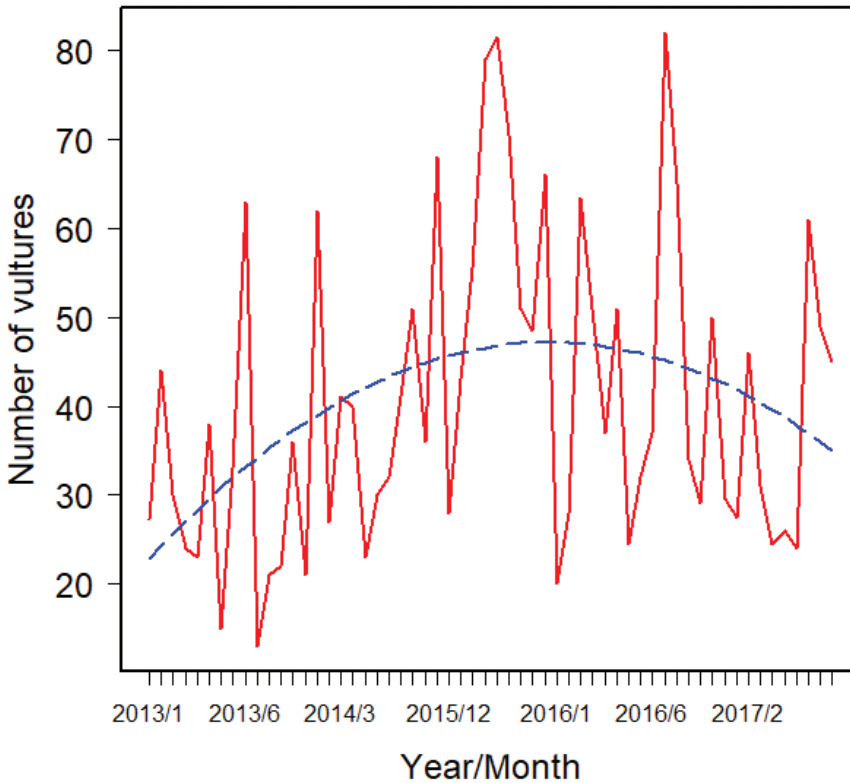


Figure 2. Plot of mean counts of Egyptian Vultures per month at the Masirah municipal dump site January 2013–December 2017 (red solid line). The dashed line is the quadratic trend line using estimates of regression parameters presented in Table 2A.

Table 2. Results of general linear model testing for effect on monthly counts of Egyptian Vultures of (A) linear and quadratic temporal trends (ie effect of time); (B) month of the study; and (C) year of the study.

A

	Estimate	SE	t	Value	Pr(> t)
(Intercept)	21.350920	6.671734	3.200	0.00228	**
Linear	1.505398	0.521752	2.885	0.00558	**
Quadratic	-0.021913	0.008572	-2.556	0.01337	*

B

	Estimate	SE	t	Value	Pr(> t)
(Intercept)	30.722	7.498	4.098	0.000156	***
month2	5.611	10.603	0.529	0.599062	
month3	8.194	10.603	0.773	0.443336	
month4	5.878	11.121	0.529	0.599508	
month5	8.378	11.121	0.753	0.454845	
month6	14.178	11.121	1.275	0.208358	
month7	17.078	11.121	1.536	0.131051	
month8	15.153	11.855	1.278	0.207199	
month9	10.878	11.121	0.978	0.332803	
month10	5.078	11.121	0.457	0.649973	
month11	17.028	11.855	1.436	0.157251	
month12	7.778	11.121	0.699	0.487612	

C

	Estimate	SE	t	value	Pr(> t)
(Intercept)	29.444	4.362	6.750	1.14E-08	***
2014	5.856	6.470	0.905	0.3696	
2015	27.056	6.169	4.386	5.52E-05	***
2016	14.306	6.169	2.319	0.0243	*
2017	7.431	6.169	1.204	0.2338	

mean monthly counts varied across months of the year (Table 2B); however, the average annual count was significantly lower in 2013 and higher 2015 and 2016 (Table 2C). Mean counts per year are summarized in Table 3; a significant effect of year occurred in 2015 and 2016 (Tables 3 and 2B). Figure 2 plots mean monthly vulture counts overlaying a quadratic trend line. There was no significant effect of month of the year on the data.

The age composition of the vultures observed at the dump was highly variable, and showed no obvious seasonal pattern or trend across the study period (Figure 3). On average the ratio of non-adults to adults was 0.70 (Median=0.51, SE=0.08; N=61).

DISCUSSION

The rubbish dump on Masirah island MMDS is regularly used by Egyptian Vultures. On average a maximum of c40 vultures were observed there in any given month, similar to maximum numbers at rubbish dumps in the stronghold country of Turkey (E Buechley, S Oppel unpublished data), which are considered to be globally high counts. Although

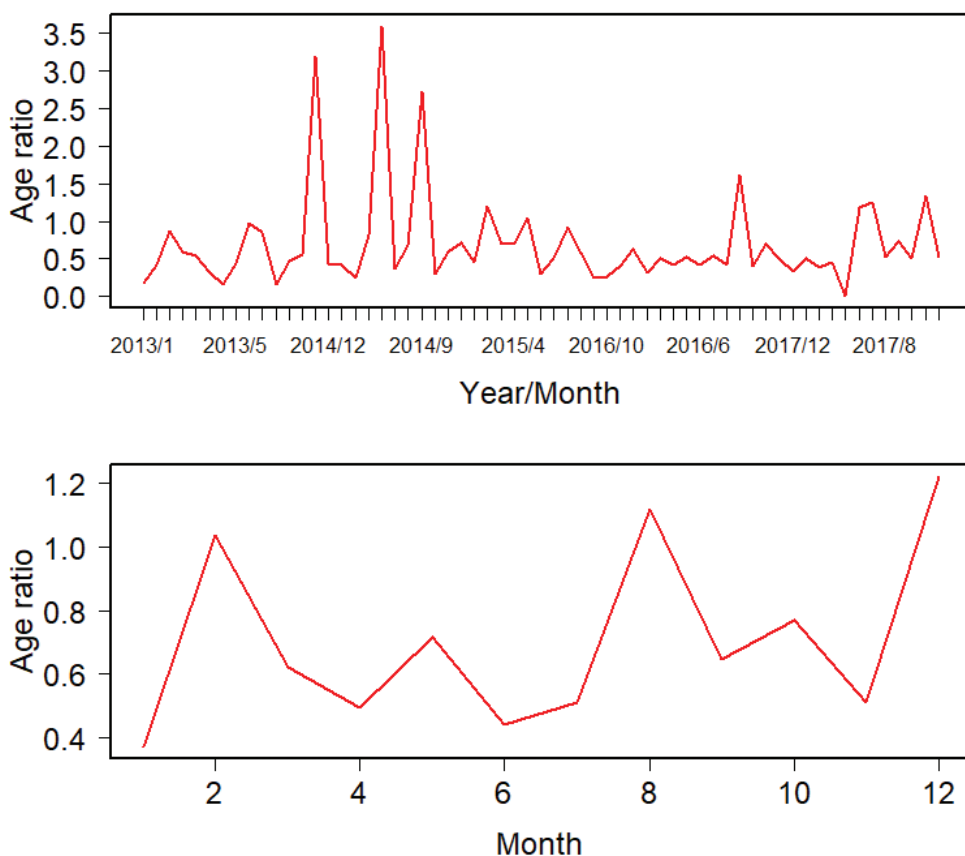


Figure 3. (A) Mean age ratio (non-adult/adult) of Egyptian Vulture counts at the Masirah island municipal rubbish dump January 2013–March 2018. (B) Mean age ratio for each month of the year (1=January, 2=February, etc.).

Table 3. Summary of Egyptian Vulture counts at the Masirah municipal dump site per year January 2013–March 2018. Data from 2018 were January–March only, and so were not used in analyses of annual variance (Table 2, Figure 2).

Year	N	Mean	Median	SE	Min	Max
2013	12	29.4	25.7	3.99	13	63
2014	10	35.3	34	3.75	21	62
2015	12	56.5	53.2	4.84	28	81.5
2016	12	43.8	37	5.45	20	82
2017	12	36.9	30.2	3.62	24	61
2018	3	26.7	21	7.75	17	42

relatively high in global terms, the numbers counted at any given time at MMDS represent only about 10–15% of the estimated population of Egyptian Vultures on the island (Angelov *et al* 2013), which probably does not include a large number of migrants (Meyburg *et al* In press).

Although the birds that use the rubbish dump could be mostly from nearby territories, radio tracking studies in northern Oman (McGrady *et al* 2018, Meyburg *et al* In press) and what is known of typical Egyptian Vulture foraging (*ie* they forage opportunistically over large areas) suggest that MMDS is used by vultures from across the island. Tracked non-breeding Egyptian Vultures in northern Oman ranged over areas much larger than Masirah (> 800 km²), despite having food that is persistently super-abundant at discreet locations (*ie* landfills and dumps), and territorial vultures regularly travelled distances in a single day (Meyburg & McGrady unpubl. data) greater than the distance between MMDS and the most distant known territory on Masirah island (Angelov & Yotsova 2012).

Taken together, our results suggest that mean counts peaked during 2015–2016, and declined thereafter leading to a significant quadratic trend in mean monthly counts. We do not know if that recent apparent decline is a result of resident vultures making more use of food sources other than the dump, or a decline in the size of the island's vulture population. Although we had no data on the amount of available food or details of its distribution on the island, it seems unlikely that changes in food supply at the rubbish dump or at other locations was the cause for the declines in numbers at the rubbish dump after 2015–2016. Apparent declines notwithstanding, it should be noted that in June 2018 the national upgrading of waste management resulted in MMDS being closed, and waste is now assembled at a nearby transfer station and transported to the Tahwa engineered landfill, over 200 km to the north on the mainland (22.36° N, 59.35° E, Figure 1). It will be interesting to see whether this change will result in a decline in the vulture breeding population on the island. Data from tracked birds on the mainland show that they continue to visit dumps that have been closed, perhaps driven by adaptations useful when food is scarce (McGrady *et al* 2018).

It was somewhat surprising that no differences were seen in the total number of vultures between months of the year (*ie* no seasonal pattern), nor was there an obvious pattern across months of changing numbers of non-adults. Masirah island has a high density of breeding Egyptian Vultures, which seem to be moderately productive (Angelov *et al* 2013). Thus, we expected a pulse of non-adult vultures coming to the rubbish dump as juveniles fledged, and perhaps using the rubbish dump for some months or longer. The lack of such a pulse could be explained by the apparently long annual breeding period (October–May at least, Angelov *et al* 2013) that would buffer the pulse effect or the availability of other food sources (*eg* at the shore line) coupled with the characteristic wide-ranging foraging behaviour of vultures.

Important goals of the research were to develop a workable scheme for making counts and monitoring the vulture population on Masirah island, and to develop new research skills amongst the ESO field assistants. The methods proved to be such that the field assistants could fit vulture counts into their monthly work schedule, and were able to reliably collect and record data on numbers and ages of vultures, suggesting that citizen scientists might be used for such work (McGrady 2016) on Masirah and elsewhere. Because Egyptian Vulture plumages can be used to age them more precisely during the first four years, it is likely that improvements to the methods can be achieved, given the positive aptitude of the field assistants. Given that waste management changed on the island in June 2018, these results provide a good basis for a before-and-after study of the effects of that change on vultures. As such, counts should be continued so as to make best use of the data already collected, and to provide insight into possible national-scale effects of waste management changes on vultures and other scavenging birds. Using dump site counts as a means of monitoring the population of Egyptian Vultures on the island requires further development and field work, including multi-year breeding surveys that will enable linking count data to breeding population size and productivity. Radio tracking of birds

would help determine the extent to which vultures move away from the island, and if there is any pattern in the use of the dump by island-bound birds. Individually marking birds could help in estimating abundance and detecting trend, as well as understanding movements and survival.

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Evidence of breeding of Savi's Warbler *Locustella luscinioides* in Iran

ABBAS ASHOORI

In June 2015, at least six Savi's Warblers *Locustella luscinioides* were found in the eastern and central portions of Anzali wetland in Gilan province, Iran. The behaviour and song of the birds and the period during which they were present in the wetland are strongly suggestive of breeding. This is the first indication of breeding by Savi's Warbler in Iran since May 1958, when a male was collected and other birds were heard in song along the southern shore of Anzali wetland.

Savi's Warbler is a cryptic, territorial, migratory passerine (Cramp 1998). It occurs in large wet reed-beds and is generally considered to be a reed-bed specialist (Cramp 1992). Its distinctive insect-like song can be a good indication of the bird's presence during the breeding season. The species is a widespread passage migrant in the Middle East (Porter & Aspinall 2010) and has been found breeding in Turkey, Syria, Lebanon, Saudi Arabia, Palestine and Jordan, but hitherto there have been no confirmed records of breeding in Iran. Here, I present evidence which strongly suggests that Savi's Warblers were breeding at Anzali wetland in Gilan province, northern Iran, in 2015. The Anzali wetland complex (37° 25'–37° 30' N, 49° 25'–49° 30' E) lies on the southern coast of the Caspian sea, Gilan province, northern Iran. The wetland covers an area of 19 300 ha and is comprised of four parts: the western, eastern and central portions of the main wetland, and Siahkeshim wetland to the southwest. Parts of the eastern and central portions are covered in marsh



Plate 1. Savi's Warbler *Locustella luscinioides*, the eastern part of Anzali wetland, northern Iran, 16 June 2015.
© A Ashoori



Plate 2. A Savi's Warbler *Locustella luscinioides* in typical habitat, Anzali wetland, northern Iran, 23 June 2015. © A Ashoori

vegetation, especially the Common Reed *Phragmites australis*, as is most of Siahkeshim wetland, while part of the western portion is an open lagoon (Ashoori & Abdoos 2013).

In Iran, Savi's Warbler occurs as a rather scarce passage migrant mid March–late April and late July–October (Kaboli *et al* 2012). Savi's Warbler was first recorded in Iran in the late 19th century and at least a dozen specimens were obtained in the 1940s and 1950s. Most of these were probably birds on passage, but on 16 May 1958, several birds were heard in song and a male was collected on the south shore of Anzali Mordab in Gilan (Schüz 1959). There were about 30 records of the species in the south Caspian region and central and southern Iran in the 1960s and 1970s, but these were all thought to relate to birds on passage (DA Scott *in litt*). The only record between the late 1970s and 2015 was of a bird at Siahkeshim wetland in Gilan on 6 October 2009 (Khaleghizadeh *et al* 2011). However, the species is probably much commoner than the paucity of records might suggest, because of its skulking behaviour (Kaboli *et al* 2012).

On 16 June 2015, in the eastern part of the wetland, I heard the song of a Savi's Warbler in the reed-beds. I could not see the bird and so I played a commercial recording of Savi's Warbler. The bird responded to the play-back, soon appearing in front of me (Plate 1), and proceeded to sing vigorously, as if defending its territory. On 18 and 19 June 2015, I heard birds making the same song at a minimum of five other sites, at least 500 m from one another, in the central part of the wetland. The birds also responded to play-back. Although I was unable to find any nest, when I checked the same sites after one week, I heard singing of the birds at all of same sites and they responded to play-back of their song. I was able to see at least four of them in four different areas, sites where I had seen or heard them in previous visits. I found the birds again. These records are strongly

suggestive of breeding. The vegetation at all sites was very similar and was covered with dense low vegetation and litter, close to or within medium-height and tall stands of the Common Reed in shallow water (Plate 2) where has been reported as suitable places for nesting of Savi's Warbler in west Portugal (Neto 2006).

These records of Savi's Warblers in song and exhibiting territorial behaviour in suitable breeding habitat during the breeding season are the first evidence of probable breeding by this species in this area and in Iran since the 1950s. It is quite possible that Savi's Warbler is a regular breeding species in wetlands in Gilan province, but has been almost entirely overlooked in the past.

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Notable breeding records from a recently established anthropogenic, agricultural, site in the United Arab Emirates

OSCAR CAMPBELL & MARK SMILES

Whilst the breeding bird communities of natural habitats in the Arabian peninsula have often not fared well at the hands of man from the second half of the 20th century onwards, the same cannot be said of species that are pre-adapted to take advantage of opportunities presented by large-scale agricultural projects. Such farms were first established in Saudi Arabia in the 1950s, with a significant increase in number and magnitude from the 1970s onwards (Jennings 2010). Since then, the technology has been adopted by most Arabian countries, with the apparent exception of Yemen (Jennings 2010). Setting aside the likely long-term environmental consequences of large-scale water extraction from fossil aquifers, such projects have had a significant and, on the whole, largely beneficial effect on a large number of breeding and wintering species, some of which (eg Sociable Lapwing *Vanellus gregarius*) are of high conservation significance. As well as the high diversity of species which use such sites (albeit of which a significant proportion may be non-indigenous), densities of a given species may greatly exceed levels reached in most natural habitats in Arabia.

This paper documents significant breeding records for five species (Black-winged Kite *Elanus caeruleus*, White-tailed Lapwing *Vanellus leucurus*, Collared Pratincole *Glareola pratincola*, Western Yellow Wagtail *Motacilla flava* and Common Starling *Sturnus vulgaris*) from one recently established agricultural site in the United Arab Emirates. Important records are put in the context of status in the UAE and the wider region. Although a number of such sites exist in the UAE, none on the scale of the current site are currently accessible to observers. Hence, this paper provides an insight into what may be occurring on similar sites elsewhere in the country.

STUDY SITE AND METHODOLOGY

As the study site is private and somewhat sensitive, with no formal access arrangements, location details are not divulged here. It is found in the sandy desert interior of the UAE between the cities of Dubai, Al Ain and Abu Dhabi. The site (Plate 1) comprises a series of large circular pivot fields (most of diameter 600 m) of various exotic grasses and forbs such as Lucerne *Medicago sativa*. Most fields were planted in autumn 2016 and are irrigated by mechanized booms rotating about a central fulcrum. Different fields vary temporally in their attractiveness to birds, based on, in particular, cutting regime and availability (or otherwise) of standing water. In several places, shallow, near-permanent pools with open shorelines have become established. Several excavated ponds lined with synthetic plastic and with gravel-covered islands are present. Over-spill areas of ephemeral standing water and shallow edges in sandy depressions outside the main fields also provide important habitat. The total area occupied by the fields is c14km², although not all fields are under cultivation at any one time. In all, 46 visits totaling 79 h were made by the authors September 2017–September 2018, with a complete species list and counts for each visit recorded. Several opportunistic visits were also made in February–March 2019.

A total of 128 species (plus 6 further taxa) were recorded during these visits (Appendix 1). Birds were recorded by scanning from the edges of the pivot fields and from a general



Plate I. Typical habitat at the study site, UAE, September 2018. © Oscar Campbell

viewpoint on the east edge of the site offering some elevation. Not all fields were checked on each visit, although the generally most productive areas were.

OBSERVATIONS ON SPECIES OF PARTICULAR INTEREST

Black-winged Kite

In common with the wider Middle East region and southern Europe (summarized by Lawicki & Perlman 2017; first records for a further three European countries during spring 2017 are noted by Kemp *et al* 2018), the UAE status of this species has changed markedly in recent years. To date, there have been 31 UAE records since the first in 1984. In the intervening years up to the end of 2013, the species averaged 0.5 records per year, all of which involved single birds. However, years 2014–2018 have averaged 3.4 records annually, with one record (2018, at the current study site) involving three individuals (Figure 1). The phenology of the species in the UAE has also changed somewhat; from 1994–2013 the first date for all records fell between September–March, with most (60%) in either November or February. Since 2014, the first date for records has ranged September–April, with no obvious concentrations in any particular month, and, in addition to the mid summer records made in the present study, there is one record in June. As with elsewhere in the Middle East, all UAE records of Black-winged Kite appear to pertain to the Asian subspecies *E. c. vociferus*.

The species was first recorded at the study site in September 2017, this individual remaining into October. Despite good coverage, there were no further records until the sudden appearance of three, including a fresh (but independent) juvenile in January 2018

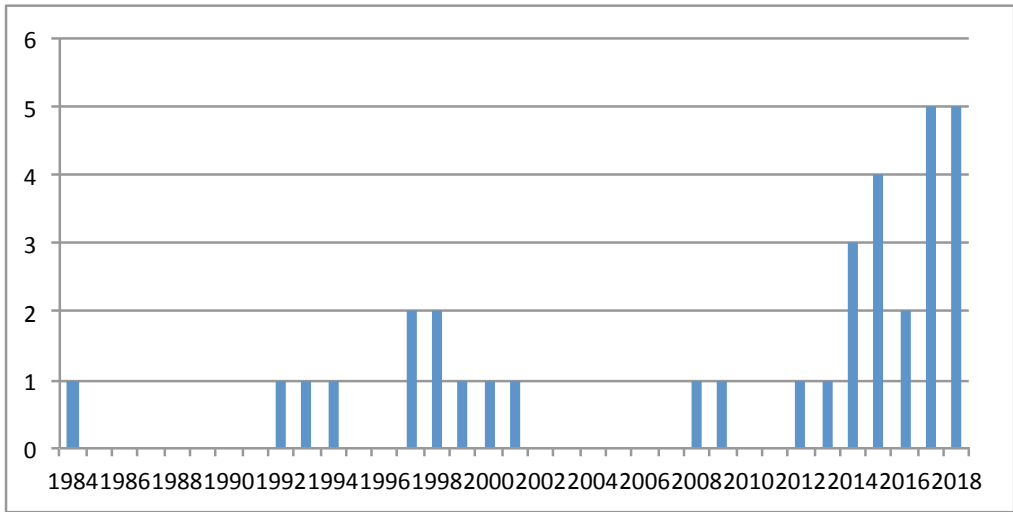


Figure 1. Number of individual Black-winged Kites *Elanus caeruleus* recorded annually in the UAE since 1984. Sources: UAE Bird Database; www.eBird.org.

(Plate 2); two adults remained thereafter. Whilst it is unlikely that such a conspicuous species could have been missed if breeding on site, the appearance of a fresh juvenile with adults is strongly suggestive of breeding somewhere nearby and quite feasibly in the UAE. Confirmation of local breeding was secured in early July 2018 with the discovery of a nest and observations of copulation on several occasions. By late July, the birds were apparently still incubating but by mid August this attempt had apparently been unsuccessful, as adults were seen again copulating. Unfortunately, access restrictions hindered follow-up visits to determine the success of the breeding attempt. Some pairs in the recently established Israeli population have bred almost year-round, completing three breeding cycles in a 13-month period (Perlman & Israeli 2013). Opportunistic observations in early March 2019 indicated that at least three (possibly four) birds were still present (OC pers obs; J. Judas pers comm).



Plate 2. Juvenile Black-winged Kite *Elanus caeruleus* 20 January 2018 at study site, UAE. © M Smiles

Within Arabia, Black-winged Kite has traditionally been a scarce breeding resident in the Tihama foothills of Yemen; the annual breeding population there has been estimated at 10–20 pairs (Jennings 2010). However, a small population colonized Iraq in 2001 (Salim 2002) and, since 2008, a number of breeding pairs have been located (Ararat *et al* 2011). The species was recorded breeding in Israel

for the first time in 2011 (Perlman & Israeli 2013), after which the population expanded very rapidly, reaching 130–150 breeding pairs by 2016 (Lawicki & Perlman 2017). The first Jordanian record was in 2013, but there were indications of possible breeding as early as 2015 (Khoury *et al* 2017). There were 18 records in Oman up to 2015 with a marked influx in 2014–2015 (seven records, all January–March and October–November). Those records included a fresh juvenile in January 2012 (Eriksen & Victor 2013) and a pair exhibiting territorial behaviour in October 2015 (Lawicki & Perlman 2017). More recently, at least one individual was present in the Muscat area of Oman from April 2017 (possibly April 2016) to January 2018 at least (Eriksen 2018). Saudi Arabia has also seen an upsurge in records, with six 2012–2015 in the north, east and central parts of the country (Lawicki & Perlman 2017). In addition, two were observed in an agricultural area near Sajir in June 2011 (Jennings 2012). As the above context makes clear, it seems likely that the species will be recorded with increasing frequency in the UAE and further breeding attempts can be expected. This species is able to raise multiple broods per year and specializes primarily on a diet of rodents (Kemp *et al* 2018) and so is pre-adapted to rapid establishment after arrival of sufficient numbers of birds. In the UAE, species of rodents such as gerbils *Gerbillus* sp, jirds *Meriones* sp and jerboas *Jaculus* sp are likely to be common in habitats such as the study site.

White-tailed Lapwing

This species first bred in the UAE in 1996 and has done so regularly since 1999 (Jennings 2010), having previously been an uncommon autumn migrant (Richardson 1990). Since becoming an established breeder, it has been concentrated at two main sites, Al Warsan lakes and adjacent Dubai pivot fields (Dubai) and Al Wathba wetland reserve, near Abu Dhabi island. At the former site, up to 104 (December 2006) have been counted, although in recent years there has been a marked decline and the now abandoned pivot fields are now too dry for successful nesting or feeding (Figure 2). At Al Wathba, the species has been present in low numbers for many years (maximum 26); four pairs or fewer are noted most breeding seasons and the population does not seem to be increasing (Campbell *et al* 2018). Elsewhere, save for regular records of very small numbers (typically less than

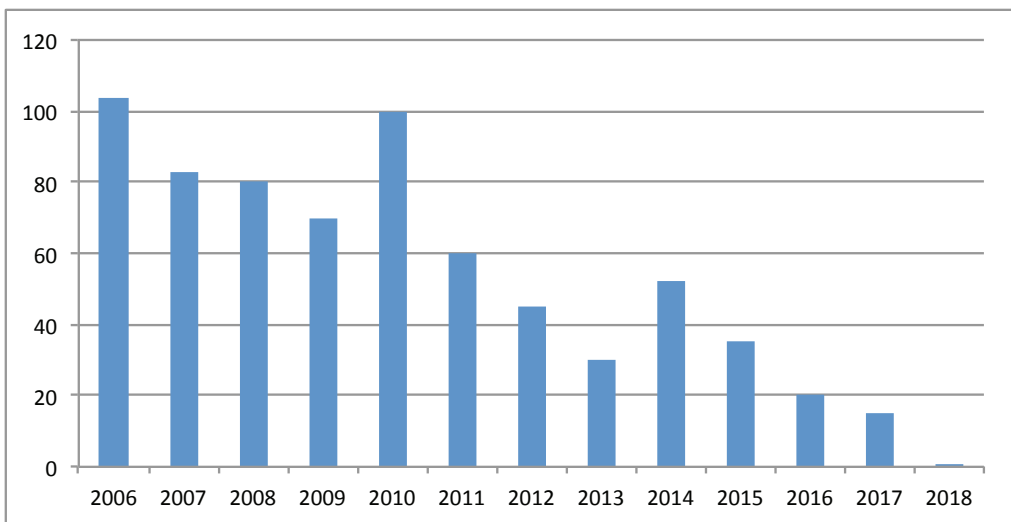


Figure 2. Trends in White-tailed Lapwing *Vanellus leucurus* numbers at Al Warsan lakes and Dubai pivot fields, 2006–2018. Data are maximum annual count recorded. Sources: UAE Bird Database; www.eBird.org.



Plate 3. Adult White-tailed Lapwing *Vanellus leucurus* mobbing observers, 27 April 2018 at study site, UAE. © O Campbell

10) in the Al Ain and Wasit (Sharjah) areas since 2000 and 2008 respectively, the species is very infrequent (eg one autumn record, Abu Dhabi island, 2007–2018 despite intensive observations; OC pers obs) with little evidence of fresh arrivals from the species' main range in south-central Asia. Given the decline at its major UAE site, the appearance, albeit of small numbers, at the study site is welcome. Up to six birds were present from October 2017 with two pairs in close proximity in late April 2018 mobbing observers furiously (Plate 3). Successful breeding was confirmed in late May 2018, when recently fledged juveniles were observed. Juveniles and demonstrative adult birds were still present into July. Subsequently, birds were observed in the breeding area in February 2019 (OC pers obs). The UAE is on the southernmost fringe of the breeding range of White-tailed Lapwing and the species has always been very local and scarce in Arabia (Jennings 2010). Outside the UAE, there are irregular breeding records only from Saudi Arabia and Kuwait. Despite being a fairly common passage migrant to northern Oman, there are no breeding records (Eriksen & Victor 2013). It is much more tied to extensive shallow water bodies than Red-wattled Lapwing *Vanellus indicus*, often feeding on open shorelines (Wiersma & Kirwan 2018) and appears to be much less adaptable to drier anthropogenic habitats.

Collared Pratincole

This species is a regular spring (mainly April) and autumn (mainly September) migrant through the UAE, often in small groups and occasionally larger flocks (up to 40) (UAE Bird Database). It is also regularly recorded in summer (June–July) with summer records in 12 years 2000–2016. The species was confirmed to breed in the UAE for the first time



Plate 4 (left). Nearly-fledged Collared Pratincole *Glareola pratincola* chick at study site, UAE, 8 June 2018. © O Campbell

Plate 5 (right). Adult Collared Pratincole *Glareola pratincola* apparently incubating at the study site, UAE, 8 June 2018. © O Campbell

at Al Wathba in 2005 (Jennings 2010) and breeding was strongly suspected at Dubai pivot fields in 2008 (based on agitated adults in early June and a juvenile seen in late July, Tovey 2009). The only other breeding records come from Ajban, within 50 km of the study site, in 2010 (one or two pairs), with breeding suspected there in 2011 and confirmed (one pair) in 2014. In 2018, the species was absent from the study site until mid April, when 11 were found. Birds remained obvious into June, with the first almost fledged juvenile noted on 26 May and at least four other juveniles (from 20 birds in total) on 8 June (Plate 4). On the latter date, at least one bird was still apparently incubating (Plate 5), and other adults were demonstrative and aggressive when approached. The nesting area was a very bare, flat, gravel island in a rather small ornamental pool, although it is possible that bare patches in a large pivot field were also used (an adult was seen there apparently settling with prey). Recently fledged juveniles used the shoreline of the pool for roosting and adults perched readily on the surrounding sandy edge. By 30 June 2018, most adult birds appeared to have dispersed although one juvenile was still near the nesting area and at least two adults, now in active wing moult, were feeding over fields. At least 12 full-grown juveniles were observed on adjacent pivot fields in early July 2018, indicating a good level of breeding success. Given a brood size of up to three (Maclean & Kirwan 2018), this would imply a minimum of four successful pairs at the study site in 2018. One juvenile remained until 7th September 2018.

Collared Pratincole appears to be an opportunistic breeder across Arabia, with perhaps up to 20 pairs in any one year and the range is likely to be slowly expanding (Jennings 2010). It has bred erratically at Sohar farms, northern Oman, since at least 1996, with up to



Plate 6. Juvenile Western Yellow Wagtail *Motacilla flava feldegg*, 7 July 2018. © M Smiles Identification to subspecies level is based on the appearance of accompanying adults.

25 pairs present in some years (Eriksen & Victor 2013). Interestingly, the species was also confirmed to breed at a new site in the UAE, a turf farm at Hamraniyah, Ras al Khaimah emirate (100 km northeast of the study site) in July 2018, and there is some evidence it may have bred (or attempted to breed) in previous years there too (MS pers obs).

Western Yellow Wagtail

This appears to be a genuinely rare species in the UAE in summer. Out of a total of 2409 records in the UAE Bird Database, only 17 (0.7%) date from the months of June or July and 10 of these records alone come from one site, the (now defunct) Dubai pivot fields in June 2011. In that year, Western Yellow Wagtail was confirmed to breed there, when a juvenile was observed being fed by a male of the subspecies *M. f. feldegg* (hereafter *feldegg*). Records of singing males and a subsequent juvenile in June 2008 from this site were highly suggestive of breeding (Tovey 2009) and was regarded as confirmed by Jennings (2010). Single, freshly-fledged juveniles were also recorded from the site in June 2013 and 2014. There are no other suspected breeding records from the UAE, but male *feldegg* have been observed singing and apparently holding territory at Mafraq water treatment plant, east of Abu Dhabi island, in June 2013 and 2014 (OC pers obs). However, small groups of *feldegg* are prone to return very early to the UAE during ‘autumn’ migration (or post-breeding dispersal) and at least some June and July records are likely to originate from such sources and hence may not indicate local breeding. *Feldegg* is the earliest of the four regularly occurring subspecies of Yellow Wagtail to migrate through the UAE, with



Plate 7. Common Starling *Sturnus vulgaris* nestlings, 6 July 2018. © M Smiles

most in late February or early March and is rare from late March onwards (Campbell & Moran 2016; contra Jennings 2010). A similar phenology is recognized for *feldegg* in Oman (Eriksen & Victor 2013). At the study site, there were no records definitely attributed to this subspecies in early spring 2018 but on a late April visit, two males were observed singing and obviously holding territory. Birds were still present until July 2018, with a maximum of four seen per visit. Most records came from a pivot field of rank grass and small open spaces, situated near overflow pools of open water, although the species was also noted flying over lucerne fields as well. On 7 July 2018, a pair was observed with two juveniles, one of which was photographed (Plate 6) and at least one of which was still present 27 July.

The subspecies *feldegg* is the most southerly breeder of all Western Yellow Wagtail subspecies and regularly breeds as close to Arabia as southern Iran (Tyler & Christie 2018). Excluding the UAE, there are only two breeding records from elsewhere in Arabia. These are from al-Karj, Saudi Arabia (from 2001, Jennings 2010) and northern Oman (May 2013, Eriksen & Victor 2013). The habitat from all these other sites is broadly comparable to that at the study site.

Common Starling

This species is a very rare breeder in Arabia, confirmed from one site only (Hamraniyah, Ras al Khaimah emirate, UAE) and recorded as a possible or probable breeder at only four further sites (Jennings 2010). All sites are in the proximity of the southern shore of the Arabian gulf. Breeding was first confirmed at Hamraniyah in 1991 and has continued there most years since (UAE Bird Database). Breeding was also confirmed from Dubai

pivot fields in 2009–2010. Otherwise, the species is a rather scarce winter visitor to the UAE. Common Starling was not recorded from the study site until January 2018 and numbers remained very small until a flock of at least 20, including many juveniles, was seen on 30 June 2018. On the same date, two adults were watched carrying food (unidentified invertebrates) back to an area of sandy dunes with isolated dead, and hence bare, *Prosopis cineraria* trees. The adults were seen sequentially to visit a nesting hole to deposit the food. The nest site was a deep cleft in the main trunk of a tree, two feet up from the ground and fully exposed to the sun. At least one blind chick was evident in the nest, with a second chick confirmed a week later (Plate 7). This appears to be the first actual nest for this species found in the UAE (Jennings 2010). The original breeding site of Hamraniyah is similar to the study site in that there are large areas of cultivated fields for foraging. However, Hamraniyah is much shadier and greener, with large, healthy *Prosopis* trees in relatively close proximity giving it a somewhat parkland effect.

Other species of interest

In addition to the five species detailed above, the study site has been rapidly colonized by a number of other breeding bird species. Black-winged Stilt *Himantopus himantopus*, Red-wattled Lapwing, Kentish Plover *Charadrius alexandrinus* and Little Ringed Plover *C. dubius* are all common, with chicks readily observed April–June. Large numbers of Pin-tailed Sandgrouse *Pterocles alchata*, originally released some years ago, are now established in the area and visit the fields in large numbers; a juvenile was observed 7 July 2018. Black-crowned Sparrow-Larks *Eremopterix nigriceps* and, to a lesser extent, Brown-necked Ravens *Corvus ruficollis* and Greater Hoopoe-Larks *Alaemon alaudipes* breed in the surrounding desert and move onto the site to feed, with Black-crowned Sparrow-Larks sometimes very numerous. European Turtle Dove *Streptopelia turtur* is present all year and breeds commonly in the surrounding area. Up to 175 have been recorded as aggregations of post-breeding adults and juveniles in October, although numbers are much lower in winter. In autumn and winter, the site attracts a wide range of waterbirds and raptors with, amongst the latter, mixed roosts of harriers *Circus* (up to 45; mainly Marsh *C. aeruginosus* and Pallid *C. macrourus*) notable, as are small numbers of both Eastern Imperial Eagle *Aquila heliaca* and Lappet-faced Vulture *Torgos tracheliotus*. Four Sociable Lapwings remained from November 2017–January 2018. It is likely that continued development and expansion of such sites will likely further influence the distributions (both breeding and in winter) of many species in the Arabian peninsula. Evidence of such changes for species of conservation significance (Sociable Lapwing) is presented in Babbington & Roberts (2017).

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Appendix 1. List of species recorded by the authors September 2017–September 2018 at the study site. A total of 128 species, plus a further 6 taxa (flagged with * in the list that follows; either distinct at subspecies level or closely related species pairs that could not be definitively identified), were recorded. Note that the total number of visits made was 46, but that not all surveyed the entire site and others were simply point counts from an elevated viewpoint on the edge of the site. The mean count data does not include visits in which the species was not recorded.

	No. of visits on which species recorded	Maximum count	Mean count
Egyptian Goose <i>Alopochen aegyptiaca</i>	20	70	12.9
Garganey <i>Spatula querquedula</i>	4	20	8.5
Northern Shoveler <i>Spatula clypeata</i>	10	60	30.7
Gadwall <i>Mareca strepera</i>	1	1	1.0
Eurasian Wigeon <i>Mareca penelope</i>	1	4	4.0
Mallard <i>Anas platyrhynchos</i>	6	25	14.3
Northern Pintail <i>Anas acuta</i>	6	6	2.0
Eurasian Teal <i>Anas crecca</i>	10	100	35.8
Grey Francolin <i>Francolinus pondicerianus</i>	9	9	5.7
Common Quail <i>Coturnix coturnix</i>	2	3	2.5
Little Grebe <i>Tachybaptus ruficollis</i>	17	45	15.7
Greater Flamingo <i>Phoenicopterus roseus</i>	6	500	135.0
White Stork <i>Ciconia ciconia</i>	2	13	8.5

	No. of visits on which species recorded	Maximum count	Mean count
Glossy Ibis <i>Plegadis falcinellus</i>	17	100	17.9
Black-crowned Night Heron <i>Nycticorax nycticorax</i>	2	150	76.0
Western Cattle Egret <i>Bubulcus ibis</i>	30	175	39.0
Grey Heron <i>Ardea cinerea</i>	21	50	11.4
Great Cormorant <i>Phalacrocorax carbo</i>	5	300	146.0
Black-winged Kite <i>Elanus caeruleus</i>	17	3	1.5
Lappet-faced Vulture <i>Torgos tracheliotos</i>	4	3	2.5
Greater Spotted Eagle <i>Clanga clanga</i>	10	4	1.7
Booted Eagle <i>Hieraaetus pennatus</i>	1	1	1.0
Eastern Imperial Eagle <i>Aquila heliaca</i>	3	2	1.7
Bonelli's Eagle <i>Aquila fasciata</i>	5	1	1.0
Eurasian Sparrowhawk <i>Accipiter nisus</i>	1	1	1.0
Western Marsh Harrier <i>Circus aeruginosus</i>	18	35	8.8
Pallid Harrier <i>Circus macrourus</i>	11	10	3.4
Montagu's Harrier <i>Circus pygargus</i>	12	4	1.9
*Pallid/Montagu's Harrier (<i>Circus macrourus/pygargus</i>)	7	5	2.6
Long-legged Buzzard <i>Buteo rufinus</i>	3	1	1.0
Common Moorhen <i>Gallinula chloropus</i>	6	6	2.5
Black-winged Stilt <i>Himantopus himantopus</i>	30	150	58.9
Pied Avocet <i>Recurvirostra avosetta</i>	14	25	6.8
Red-wattled Lapwing <i>Vanellus indicus</i>	34	200	50.9
Sociable Lapwing <i>Vanellus gregarius</i>	2	4	3.5
White-tailed Lapwing <i>Vanellus leucurus</i>	22	7	4.1
Pacific Golden Plover <i>Pluvialis fulva</i>	1	1	1.0
Grey Plover <i>Pluvialis squatarola</i>	1	2	2.0
Common Ringed Plover <i>Charadrius hiaticula</i>	13	50	14.2
Little Ringed Plover <i>Charadrius dubius</i>	22	40	9.3
Kentish Plover <i>Charadrius alexandrinus</i>	24	200	49.2
Eurasian Curlew <i>Numenius arquata</i>	7	6	2.6
Black-tailed Godwit <i>Limosa limosa</i>	1	10	10.0
Ruff <i>Calidris pugnax</i>	22	250	44.4
Broad-billed Sandpiper <i>Calidris falcinellus</i>	3	1	1.0
Curlew Sandpiper <i>Calidris ferruginea</i>	8	4	1.8
Temminck's Stint <i>Calidris temminckii</i>	18	60	17.2
Dunlin <i>Calidris alpina</i>	5	30	13.4
Little Stint <i>Calidris minuta</i>	23	300	92.2

	No. of visits on which species recorded	Maximum count	Mean count
Common Snipe <i>Gallinago gallinago</i>	17	50	13.4
Terek Sandpiper <i>Xenus cinereus</i>	2	1	1.0
Red-necked Phalarope <i>Phalaropus lobatus</i>	4	4	2.0
Common Sandpiper <i>Actitis hypoleucos</i>	6	3	2.0
Green Sandpiper <i>Tringa ochropus</i>	15	4	1.9
Common Redshank <i>Tringa totanus</i>	17	15	4.3
Marsh Sandpiper <i>Tringa stagnatilis</i>	20	25	6.4
Wood Sandpiper <i>Tringa glareola</i>	22	25	5.8
Spotted Redshank <i>Tringa erythropus</i>	3	2	1.7
Common Greenshank <i>Tringa nebularia</i>	11	3	1.5
Cream-coloured Courser <i>Cursorius cursor</i>	2	4	3.0
Collared Pratincole <i>Glareola pratincola</i>	15	20	9.9
Black-headed Gull <i>Chroicocephalus ridibundus</i>	2	1	1.0
*Large white-headed gull sp, <i>Larus</i>	1	1	1.0
Whiskered Tern <i>Chlidonias hybrida</i>	1	1	1.0
White-winged Tern <i>Chlidonias leucopterus</i>	2	1	1.0
Pin-tailed Sandgrouse <i>Pterocles alchata</i>	24	1000	224.8
Chestnut-bellied Sandgrouse <i>Pterocles exustus</i>	4	50	25.5
Rock Dove (Feral) <i>Columba livia</i>	12	100	31.5
Common Wood Pigeon <i>Columba palumbus</i>	1	1	1.0
European Turtle Dove <i>Streptopelia turtur</i>	16	175	17.2
Eurasian Collared Dove <i>Streptopelia decaocto</i>	24	1000	244.2
Laughing Dove <i>Spilopelia senegalensis</i>	21	300	99.7
Namaqua Dove <i>Oena capensis</i>	2	3	2.0
Common Cuckoo <i>Cuculus canorus</i>	2	1	1.0
Pallid Swift <i>Apus pallidus</i>	9	50	13.0
*Unidentified Swift (<i>Apus</i> sp)	1	1	1.0
Indian Roller <i>Coracias benghalensis</i>	24	14	4.1
European Roller <i>Coracias garrulus</i>	4	2	1.5
Green Bee-eater <i>Merops orientalis</i>	1	1	1.0
Blue-cheeked Bee-eater <i>Merops persicus</i>	13	85	31.3
Eurasian Hoopoe <i>Upupa epops</i>	18	10	2.7
Lesser Kestrel <i>Falco naumanni</i>	1	1	1.0
Common Kestrel <i>Falco tinnunculus</i>	19	15	5.7
Eurasian Hobby <i>Falco subbuteo</i>	1	1	1.0
Red-backed Shrike <i>Lanius collurio</i>	1	2	2.0

	No. of visits on which species recorded	Maximum count	Mean count
Isabelline Shrike <i>Lanius isabellinus</i>	7	5	3.1
Red-tailed Shrike <i>Lanius phoenicuroides</i>	11	12	3.1
*Isabelline/Turkestan Shrike <i>Lanius isabellinus/phoenicuroides</i>	4	2	1.5
Great Grey Shrike <i>Lanius excubitor</i>	21	7	3.0
Steppe Grey Shrike <i>Lanius pallidirostris</i>	12	5	2.3
Woodchat Shrike <i>Lanius senator</i>	1	1	1.0
Brown-necked Raven <i>Corvus ruficollis</i>	20	8	3.6
Greater Hoopoe-Lark <i>Alaemon alaudipes</i>	1	1	1.0
Black-crowned Sparrow-lark <i>Eremopterix nigriceps</i>	23	50	14.0
Eurasian Skylark <i>Alauda arvensis</i>	5	6	2.6
Crested Lark <i>Galerida cristata</i>	30	100	30.5
Greater Short-toed Lark <i>Calandrella brachydactyla</i>	7	50	23.7
Bimaculated Lark <i>Melanocorypha bimaculata</i>	1	1	1.0
White-eared Bulbul <i>Pycnonotus leucotis</i>	6	15	6.3
Sand Martin <i>Riparia riparia</i>	11	100	19.9
Barn Swallow <i>Hirundo rustica</i>	28	400	58.3
Common House Martin <i>Delichon urbicum</i>	1	1	1.0
Clamorous Reed Warbler <i>Acrocephalus stentoreus</i>	10	13	4.6
Graceful Prinia <i>Prinia gracilis</i>	15	5	2.8
Asian Desert Warbler <i>Sylvia nana</i>	2	2	1.5
Menetries's Warbler <i>Sylvia mystacea</i>	1	1	1.0
Bank Myna <i>Acridotheres ginginianus</i>	1	2	2.0
Common Myna <i>Acridotheres tristis</i>	20	50	20.9
Rosy Starling <i>Pastor roseus</i>	1	1	1.0
Common Starling <i>Sturnus vulgaris</i>	9	25	9.0
Song Thrush <i>Turdus philomelos</i>	1	1	1.0
Rufous-tailed Scrub Robin <i>Cercotrichas galactotes</i>	2	1	1.0
Spotted Flycatcher <i>Muscicapa striata</i>	1	1	1.0
Bluethroat <i>Luscinia svecica</i>	7	3	2.4
Common Rock Thrush <i>Monticola saxatilis</i>	1	2	2.0
European Stonechat <i>Saxicola rubicola</i>	1	1	1.0
Siberian Stonechat <i>Saxicola maurus</i>	5	2	1.4
*Siberian Stonechat (Caspian) <i>Saxicola maurus hemprichii</i>	1	1	1.0
Isabelline Wheatear <i>Oenanthe isabellina</i>	11	6	3.1
Desert Wheatear <i>Oenanthe deserti</i>	13	15	5.7
Pied Wheatear <i>Oenanthe pleschanka</i>	7	10	3.4

	No. of visits on which species recorded	Maximum count	Mean count
Red-tailed Wheatear <i>Oenanthe chrysopygia</i>	2	1	1.0
Purple Sunbird <i>Cinnyris asiaticus</i>	5	7	3.0
House Sparrow <i>Passer domesticus</i>	22	500	208.6
Indian Silverbill <i>Euodice malabarica</i>	6	11	3.8
Western Yellow Wagtail <i>Motacilla flava</i>	11	10	3.1
*Western Yellow Wagtail (Black-headed) <i>Motacilla flava feldegg</i>	9	8	2.9
Citrine Wagtail <i>Motacilla citreola</i>	4	6	2.5
White Wagtail <i>Motacilla alba</i>	12	50	17.9
Richard's Pipit <i>Anthus richardi</i>	1	1	1.0
Tawny Pipit <i>Anthus campestris</i>	11	30	11.8
Red-throated Pipit <i>Anthus cervinus</i>	5	2	1.4
Water Pipit <i>Anthus spinoletta</i>	10	15	7.2
Black-headed Bunting <i>Emberiza melanocephala</i>	1	2	2.0

A Leach's Storm-petrel *Hydrobates leucorhous* off the United Arab Emirates

OSCAR CAMPBELL & MARK SMILES

Since 2010, pelagic trips exploring the northern Gulf of Oman, UAE, mainly out of the port of Kalba, have resulted in several exciting discoveries (Campbell *et al* 2017). On 25 May 2018, a Leach's Storm-petrel *Hydrobates leucorhous* was observed. This is a very rare species throughout the Indian ocean with few well-documented records. The bird was first noted at c1630 h at 25° 11.11' N, 57° 00.68' E, 67 km east of Fujairah. Even at long range, the bird looked strikingly different from Wilson's Storm-petrels *Oceanites oceanicus* seen that day. Structure and shape were distinctive and more reminiscent of Swinhoe's Storm-petrel *H. monorhis*, the only other storm-petrel species recorded on previous trips. A closer approach was made and the bird was pursued for almost 10 minutes, observed at close range, and photographed and videoed (Plates 1–4).

FIELD CHARACTERS

Compared to Wilson's Storm-petrel, the bird had very long and narrow, scythe-shaped wings, a rather slim body, and longer, slightly narrower tail. Overall size appeared rather greater, mainly due to the much longer wings. Flight was effortless and bounding, and was distinctive and notably different from the 27 Wilson's Storm-petrels seen that day. Video footage illustrates the flight and can be viewed at <https://www.youtube.com/watch?v=eezkPaAwI80&feature=youtu.be>. Plumage was brown-washed black, somewhat ashy-toned, unlike the darker, relatively blackish tones typical of Wilson's Storm-petrel. The overall paler effect was emphasized by a rather broad and diffuse curving ulnar bar that reached the leading edge of the wing. White uppertail coverts were clearly visible, but rather restricted and just wrapped over to the underside, whereas they wrapped around to the thighs on the Wilson's Storm-petrels. A diffuse, dark central line down the white 'rump' is evident in photographs though was difficult to see in the field. The rump pattern matched birds scored as 2–2.5 by Howell *et al* (2009); such values are typical for Leach's Storm-petrels of the nominate subspecies.

IDENTIFICATION

A combination of size, wing structure and plumage features, in particular the obvious white uppertail-coverts with diffuse dark central band, combine to rule out almost all other possible species from both recently recognized storm-petrel families, 'Northern' *Hydrobatidae* and 'Southern' *Oceanitidae* (Carboneras & Bonan 2018). Leach's Storm-petrel is a member of the former family but, of those species, only Wedge-rumped Storm-petrel *Hydrobates tethys* and the critically endangered (presumed extinct) Guadalupe Storm-petrel *H. macrodactylus* closely resembles Leach's Storm-petrel. Given a tiny range (off northwest Mexico) and no definite records since 1912 (BirdLife International 2018), the latter species can be discounted. The former is common in the eastern tropical Pacific (Carboneras *et al* 2018b) but as a rule has much more extensive white uppertail coverts, which greatly exceed the extent of black visible on the tail. An obvious tail-fork is typical of Leach's Storm-petrel and views in the field seemed to detect this. However, close examination of images indicates that the tail is very worn, making any interpretation of exact shape inadvisable. A more realistic identification problem is Band-rumped Storm-petrel *Hydrobates castro*, widespread across the tropical and subtropical Atlantic and Pacific oceans and reported from Eilat, Israel (Shirihai 1996) and the Maldives (Anderson 2007). Separation of



Plate 1 (above left). Leach's Petrel *Hydrobates leucorhous* 67 km east of Fujairah, UAE, 25 May 2018. © Richard Stansfield Note rather brownish tone to head, mantle and covert feathers, with rather broad, pale ulnar bar reaching the carpal. The dusky line down the centre of the rump is obvious. The bill looks long but not especially heavy.



Plate 2 (above right). Leach's Petrel *Hydrobates leucorhous* 67 km east of Fujairah, UAE, 25 May 2018. © Jacky Judas As well as plumage features, note the very long wings with narrow bases, prominent carpal angle and long, pointed tips.



Plate 3. Leach's Petrel *Hydrobates leucorhous* 67 km east of Fujairah, UAE, 25 May 2018. © Oscar Campbell A gap in the left wing where the third (or fourth) primary should be is symmetrical with a gap on the right wing (Plate 1). This may indicate moult, with the third (or fourth) primary regrowing. If this interpretation is correct, it indicates a second calendar year bird, which initiate moult in April (Cramp & Simons 1977). Adults moult post breeding and have normally completed by late winter or early spring, although a few are later than this and are still regrowing their outermost primaries in late spring (RL Flood *in litt*). However it is not certain that the gaps genuinely indicate moult (rather than damage) and a second calendar year bird might be expected to have older, more worn primaries than this bird seems to exhibit. For these reasons, aging is uncertain.

this species from Leach's Storm-petrel has been well studied in the North Atlantic (eg Flood & Fisher 2013; see also Flood 2012) and, given a good view, is fairly straightforward. Structural differences are important; the rather angular wings with narrow, pointed primaries markedly swept back, rather slim body and relatively light bill support the identification as Leach's, as do the rather deep, languid wingbeats in travelling flight. With regard to plumage, whilst subject to some variation, on typical Band-rumped the ulnar bar is weaker, fading as it reaches the leading edge of the wing and the narrow white 'rump' lacks a dark, diffuse dividing line (although a hint of a dark line may be shown by any white-rumped species if feathers are dislodged; RL Flood *in litt*). This record was accepted as a Leach's Storm-petrel by the Emirates Birds Records Committee in September 2018.



Plate 4. Leach's Petrel *Hydrobates leucorhous* 67 km east of Fujairah, UAE, 25 May 2018. Collage to illustrate wing posture. © Mark Smiles

DISCUSSION

Leach's Storm-petrel breeds in the north Atlantic and north Pacific oceans as far south as California (nominate subspecies) with three further subspecies, recently proposed as full species (Howell *et al* 2009), breeding on islands off northwest Mexico (Carboneras *et al* 2018a, where all are currently treated as subspecies). All three of these (sub)species are short-distance migrants, with long-distance vagrancy unlikely, whilst rump pattern, brownish cast to the plumage and long wings are possibly supportive of the identification as a bird of the nominate subspecies (T McGrath *in litt*), although any differences are quite subtle (RL Flood *in litt*). Pacific birds winter to 5°S whilst those from northern Atlantic colonies reach the coasts of Brazil and South Africa (Carboneras *et al* 2018a). Despite being recently discovered to breed on Dyer island, South Africa (Whittington *et al* 2001), there are very few records of Leach's Petrel from the Indian ocean. In the southern Indian ocean, there is a specimen record from Kenya (Laphorn *et al* 1970) and a recent record from Mozambique (Copete 2016). The only documented records in the northern Indian ocean appear to be a bird from the Maldives in April 1998 (Anderson & Baldock 2001; although, in the absence of photographs or a specimen, this record was not included by Rasmussen & Anderton 2012) and from Sharjah, UAE, on the Arabian gulf coast (see below). There are no records from Oman (Eriksen & Victor 2013) and, although the eight records of birds observed in the Red sea off Eilat, Israel, 1980–1990 were believed at the time to have been Leach's Storm-petrels, there is now some doubt about the identification of the birds involved in these records (Granit 2016). There is also a record of a trapped bird at southern Sinai, Egypt, in August 1978 (Granit 2016). The record from the UAE in 1969 was documented by Laphorn *et al* (1970). The circumstances are rather odd, although there is no reason to doubt the identification. The bird was found dead, apparently hit by a car, on a roadside at Sharjah airfield on 8 June 1969. It was not immediately collected, but was gathered three weeks later. The mummified specimen was preserved and is held at the British Museum, Tring, UK. Unfortunately, meteorological data during or prior to the sighting are not discussed, although timing and location of the record are consistent with a bird migrating north in the 'wrong' ocean and then becoming trapped and eventually exhausted in the Arabian gulf as it attempted to continue north. Whilst there is no reason to connect the 2018 bird to adverse weather, it is worth noting that its occurrence was

simultaneous with the passage of cyclone Mekunu moving north from Socotra island, Yemen–Salalah, Oman, where wind speeds reached 170 km/h. Given the occurrence of Cory's Shearwater *Calonectris borealis* in previous years (Campbell *et al* 2013), this record does not represent the first occurrence of a North Atlantic breeding species that winters as far south as western South Africa, reaching UAE waters. However, the North Pacific as an alternative origin for this bird cannot be discounted either, given the occurrence of Swinhoe's Storm-petrels in small numbers in UAE waters (Campbell *et al* 2017).

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Long-term changes in the numbers and abundance of regularly breeding land bird species on Cyprus: a review

PETER FLINT

For most of the 20th century the total number of regularly breeding land bird species on Cyprus remained apparently constant, as predicted by the theory of island biogeography. However, since c1992 there has been an unexpected increase in that total, which has coincided with extensive environmental changes but also with increased ornithological activity on the island. Examination of the colonising species, and of those pre-existing residents which have undergone large increases, suggests that the main reasons for these colonisations and increases are anthropogenic, particularly increased habitat diversity and rapid climate change; reduced persecution and disturbance may also be important. These environmental changes may have altered the island's equilibrium total. The species which have colonised and increased are mainly resident, including all those with minimum populations ≥ 100 pairs, suggesting that the environmental changes are favouring residents rather than migrant breeders. A small number of extinctions also occurred during and since the 20th century; these also appear to be anthropogenic or mainly so. The rapid climate change on the island is predicted to continue, suggesting there will be further avian population changes.

INTRODUCTION

The theory of island biogeography (MacArthur & Wilson 1967 and *eg* Schoener 2010, McCollin 2017, Valente *et al* 2017) predicts for an island like Cyprus (Figures 1, 2), large, continental and not recently formed (Blondel & Aronson 1999), that its total number of regularly breeding land bird species (*ie* excluding seabirds) will be in equilibrium. That is, the total number will remain approximately constant over time as non-anthropogenic colonisation and extinction rates maintain a long term dynamic balance, which will vary



Figure 1. Cyprus, showing the main topographical features and locations mentioned in the text.



Figure 2. Cyprus and the eastern Mediterranean region showing neighbouring countries and islands.

Table 1. Regularly breeding land bird species which became extinct on Cyprus during and since the 20th century.

	Former status	Extinct since	Suspected main causes of extinction
Cinereous Vulture <i>Aegypius monachus</i>	resident	c1982	loss of carrion; poisoning, persecution and disturbance; vulnerable small population
Eastern Imperial Eagle <i>Aquila heliaca</i>	resident	c1995	loss of carrion; poisoning, persecution and disturbance; vulnerable small population
Lesser Kestrel <i>Falco naumanni</i>	migrant breeder	after 1929, up to 1950	pesticide use, loss of nest sites, agricultural intensification, persecution and disturbance
Black-bellied Sandgrouse <i>Pterocles orientalis</i>	resident	1980s?	hunting, agricultural intensification, increased frequency of severe drought years
White-throated Dipper <i>Cinclus cinclus</i>	resident	1945 or soon after that	prolonged drought, hunting/collecting, vulnerable small population
Dead Sea Sparrow <i>Passer moabiticus</i>	mainly dispersive or migrant breeder	colonised c1976. extinct 1990 or soon after	prolonged drought causing drying of habitat, disturbance, vulnerable small population

stochastically around a mean that is largely dependent on island area. The theory also predicts that the species' turnover rate and the variance around the mean will be low. For most of the 20th century Cyprus's regularly breeding land bird total did remain remarkably constant, especially so when anthropogenic changes are discounted (Bucknill 1911, 1913, Jourdain 1930, Bannerman & Bannerman 1958, 1971, Bourne *et al* 1964, Stewart & Christensen 1971, Flint & Stewart 1983, 1992). The changes during that period being the extinctions of Cinereous Vulture *Aegypius monachus*, Lesser Kestrel *Falco naumanni*, Black-bellied Sandgrouse *Pterocles orientalis* and White-throated Dipper *Cinclus cinclus* (the former two anthropogenic, the latter two probably at least partly so) and the colonisation by European Greenfinch *Chloris chloris*. Also, small breeding populations of Long-eared Owls *Asio otus* and Northern Goshawks *Accipiter gentilis* were discovered and another of Dead Sea Sparrows *Passer moabiticus* existed briefly (Flint & Stewart 1983, 1992). However, since the 1990s apparently new colonists have caused an unexpected increase in the total

Table 2. Apparently new colonising land bird species on Cyprus during and since the 20th century.

	Breeding status	Regular breeder since	Suspected main causes of colonisation
Little Grebe <i>Tachybaptus ruficollis</i>	resident/ opportunistic	1988: irregular previously	presence of many new artificial permanent water bodies/wetlands, reduced persecution
Western Cattle Egret <i>Bubulcus ibis</i>	resident	2004 or earlier	increased immigration resulting from range expansion of the species
Mallard <i>Anas platyrhynchos</i>	resident/ opportunistic	1993: irregular previously	presence of many new artificial permanent water bodies/wetlands, reduced persecution
Northern Goshawk <i>Accipiter gentilis</i>	resident	1980s or earlier	reafforestation, reduced disturbance and persecution
Long-legged Buzzard <i>Buteo rufinus</i>	resident	1992 or earlier	increased immigration, reduced disturbance and persecution
Common Moorhen <i>Gallinula chloropus</i>	resident/ opportunistic	1992: irregular previously	presence of many new artificial permanent water bodies/wetlands, reduced persecution
Eurasian Coot <i>Fulica atra</i>	resident/ opportunistic	1998: irregular previously	presence of many new artificial permanent water bodies/wetlands, reduced persecution
Black-winged Stilt <i>Himantopus himantopus</i>	migrant breeder	1999: irregular previously	presence of many new artificial permanent water bodies/wetlands, reduced persecution
Spur-winged Lapwing <i>Vanellus spinosus</i>	resident/ migrant breeder	1998 or earlier	presence of many new artificial permanent water bodies/wetlands, reduced persecution
Common Blackbird <i>Turdus merula</i>	resident	1980s or earlier	less cold and less wet winters in the higher mountains, increases in neighbouring countries
Sardinian Warbler <i>Sylvia melanocephala</i>	resident	1980s? or earlier	increased immigration, climate change, out-competes endemic congener
European Greenfinch <i>Chloris chloris</i>	resident	1963 or earlier	creation of habitats with large trees, especially on low ground, regional factors?

number of regularly breeding land bird species, from 72 in 1991 (counted from Flint & Stewart 1992) to 82 in 2016 (counted from BirdLife Cyprus 2018a). Apparently new colonists are here defined as species not listed by Flint & Stewart (1992) as regularly breeding, which have bred, or probably bred, during each year of the most recent decade covered by published BirdLife Cyprus bird reports, *ie* 2007–2016 (see also Methods). Also included in the discussion (and Table 2) for this category is the European Greenfinch; although an earlier colonist its colonisation appears similar in several respects to the colonisations which followed and it was apparently the first of this wave of colonisations.

Here I list and discuss the six regularly breeding species which have been lost (Table 1) as well as Greater Short-toed Lark *Calandrella brachydactyla* which is near extinction and Marbled Duck *Marmaronetta angustirostris*, a former frequent breeder. Then I list and discuss the 15 species which apparently colonised during and since the 20th century (Tables 2, 3) as well as eight species which do not meet the above criteria for regular breeding but which may be in the process of colonising. I also discuss four pre-existing breeding species which have undergone long-term and very large increases in numbers and distribution. These species show similarities to some of the new colonists and may be earlier colonists themselves. The European Serin *Serinus serinus*, apparently such an earlier colonist, is also discussed in this section.

In addition to area, factors determining the number of breeding species on an island include its distance from the mainland, climate, habitat diversity and the level of predation/persecution. Area and distance from the mainland are constants but changes in climate

Table 3. Apparently colonising land bird species during the 20th century on Cyprus which are probably formerly overlooked scarce long-term breeders.

	Breeding status	First confirmed breeding
Eurasian Hobby <i>Falco subbuteo</i>	migrant breeder	1999 but has probably always bred
Long-eared Owl <i>Asio otus</i>	resident	1968 but has probably always bred
Woodchat Shrike <i>Lanius senator</i>	migrant breeder	1990s but has probably always bred

and predation/persecution can alter island equilibrium totals. Habitat diversity is largely a function of island area but changes in it also seem liable to alter equilibrium totals (eg Watson 1964, MacArthur & Wilson 1967, Whittaker & Fernández-Palacios 2007, Hortal *et al* 2009, Schoener 2010). The recent large increase in the number of breeding species on Cyprus has in fact coincided with extensive environmental changes on the island. I describe the latter before listing and discussing the changes in the bird populations, then look for patterns and common factors. This review has had a long gestation; it evolved from and is the published version of the Flint (in prep) discussed in Flint (2011).

METHODS

In preparing this review I have re-examined all the published material on Cyprus birds since Sibthorp (1787), eg annual reports, expedition reports, bulletins, articles, checklists, books, as well as unpublished material, eg diaries, questionnaires, reports, lists of museum specimens gathered in preparation for Flint & Stewart (1983, 1992), which see for a detailed list. This material often contains information relevant to this review and not published by those authors. For material post Flint & Stewart (1992) I have examined the publications of the Cyprus bird societies (see below) and all other relevant material, published and unpublished, that I am aware of.

The data on which the species' texts are based is both qualitative and quantitative. The primary sources are Flint & Stewart (1983, 1992), the subsequent annual reports of the four Cyprus bird societies (the Cyprus Ornithological Society (hereafter COS), the Cyprus Ornithological Society (founded 1970), Kuşkor and BirdLife Cyprus) and Whaley & Dawes (2003). I have also used the draft Kuşkor report for the years 2002–2004 (unpublished). To avoid frequent and lengthy repetition these sources are usually not cited in the text. Sources other than these are cited. For the same reason, general citations for environmental changes are given only in that section and are not repeated in the species' accounts.

I was resident on Cyprus 1969–1972 and 1998–2004 so witnessed and was impressed by the remarkable changes in its bird populations between those two periods. My observations were mostly published in the reports of the Cyprus bird societies; in the few cases where they augment the literature this is mentioned. In addition to the literature, particularly the latest reports and monthly newsletters/checklists of BirdLife Cyprus, current information on the island and its birds was provided by Alison McArthur and Colin Richardson.

For information on species' population changes elsewhere in the east Mediterranean region (Figure 2) I have used avifaunas/checklists for Greece (Handrinos & Akriotis 1997), Turkey (Kirwan *et al* 2008), Syria (Baumgart *et al* 2003, Murdoch & Betton 2008), Lebanon (Ramadan-Jaradi *et al* 2008), Jordan (Andrews 1995), Israel (Shirihai 1996), the Gaza Strip (Al-Safadi 2006) and Egypt (Goodman & Meininger 1989) plus for their wider status Cramp (and various co-authors/editors, 1977–1994), Hagemeyer & Blair (1997) and del Hoyo *et al* (2018). Population estimates are from BirdLife International (2015) unless otherwise stated. Nomenclature and sequence follow OSME (2017) except for Cetti's Warbler *Cettia cetti*, the

nomenclature of which follows Kirwan *et al* (2008), Gill & Donsker (2018) and Shirihai & Svensson (2018).

In the species' texts annual temperature sum above 5°C in degree days (GDD5) is used to represent temperature, and annual ratio of actual to potential evapotranspiration (AET/PET) to represent aridity, the lower the ratio the drier the climate (Huntley *et al* 2007). Cyprus GDD5s are from Flint (2011); that source includes Cyprus AET/PET ratios calculated using the island's mean AET of 80% of precipitation (Water Development Department 2011); I have here recalculated, using more precise AET values, for the southeastern Mesaoria plain (Voudouris *et al* 2010) and for the higher Troodos mountains (Mederer 2009). As in Flint (2011), PET values are from Water Development Department (2010).

Monitoring and recording of breeding birds

The history of bird recording on the island was detailed by Flint & Stewart (1983, 1992): essentially there were few historical breeding records from the start of the Great War in 1914 until the formation of the Cyprus Ornithological Society in 1957. Regular annual reports have been published since then but with few active observers on the island coverage of breeding birds remained poor for several further decades. For example the two reports for 1970 contain records from only six of the 66 reservoirs then in use and do not mention the Akamas peninsula at all; the two 1980 reports mention only four reservoirs and the two 1990 reports mention 20 of the 98 reservoirs then in use and have better coverage of the west of the island (COS 1971, 1981 & 1991, COS (founded 1970) 1971, 1985 & 1994, Water Development Department 2009). Also, for the north of the island coverage was extremely limited for c25 years after 1974, and is still poorer than in the south. Since Flint & Stewart (1992) was compiled coverage in the south of the island has greatly improved. The systematic monitoring of wetlands and water bodies in the south of the island was introduced by Whaley & Dawes (2003) and census/atlas counts in other habitats in the southwest 1997–2010 by Pomeroy & Walsh (*eg* 2006 & 2015). This monitoring and counting, still largely in the south of the island, is now continued and expanded by BirdLife Cyprus (*eg* Hellicar 2016a, Ieronymidou 2018). Thus breeding which may have been unnoticed in the past is now more likely to be detected.

The above pattern of often poor and uneven recording, especially in the earlier years—probably inevitable in such a long-term review—means that some of the colonising species listed below probably bred regularly earlier than the dates given. It also means that, for a few species, it is not certain whether they were new colonists or were overlooked long-term scarce breeders. In these instances I have presented the evidence and explained the reasons for my decisions.

The definition of colonisation can vary from one individual landing on an island, to the relatively lengthy persistence of an immigrant species, especially when breeding and population increase are accomplished (MacArthur & Wilson 1967). Those authors chose to use the latter definition and it is the one I have chosen to use here (with a length of population persistence ≥ 10 years). Thus the many occasional breeders (Flint & Stewart 1983, 1992, Stylianou 2017) are not considered here. Biologists can rarely if ever be certain of recording all colonisation and extinction events in real world systems (MacArthur & Wilson 1967) and that is clearly the case on Cyprus; by choosing a ten year population persistence I hope to have reduced such possibilities.

ENVIRONMENTAL CHANGES

Climate

Cyprus has an intense Mediterranean climate with a strongly-marked seasonal rhythm: long, hot, dry summers and cool, rainy, changeable winters are separated by short autumn and spring seasons of rapid change (Department of Meteorology 2018a). Following recent climate change this strong seasonality has become more marked. The mean annual temperature increased by $\approx 1^\circ\text{C}$ during the last century, with a more rapid increase of 0.015°C per annum since the 1970s (Department of Meteorology 2018a). Mean temperatures were higher in all seasons 1991–2016, compared with 1901–1930; differences were –spring (Mar–May) $+1.3^\circ\text{C}$, summer (Jun–Aug) $+1.5^\circ\text{C}$, autumn (Sep–Nov) $+0.7^\circ\text{C}$ and winter (Dec–Feb) $+1.0^\circ\text{C}$ (CCKP 2018). There was a generally larger increase in average minimum temperatures, by (depending on location) $0.7\text{--}1.6^\circ\text{C}$ in winter and $2.2\text{--}4.5^\circ\text{C}$ in summer, resulting in reduced diurnal temperature ranges (Price *et al* 1999). Although winters now average milder, occasional unusually cold periods still occur, with snow and frost at low altitudes (Department of Meteorology 2018b).

In Europe the warming climate has resulted in earlier springs, with the pollen season starting ≈ 10 days earlier than in the 1960s and insects (*eg* bees, butterflies, Odonata) emerging earlier (European Environment Agency 2017b). Similar changes might be expected on Cyprus; I am not aware of any long-term flowering plant or insect phenological data from the island but there are recent observations of unusually early flowering (Alan Outen, Özge Özden Fuller both *pers comm*) and of the unusually early emergence of butterflies (Eddie John, Alan Outen and Özge Özden Fuller, all *pers comm*) and Odonata (De Knijf & Demolder 2013, Alan Outen *pers comm*, *pers obs*). Higher temperatures also increase the activity of snakes and large lizards and their predation risk to nesting birds (DeGregorio *et al* 2014). Such reptiles are extremely common on Cyprus where they are

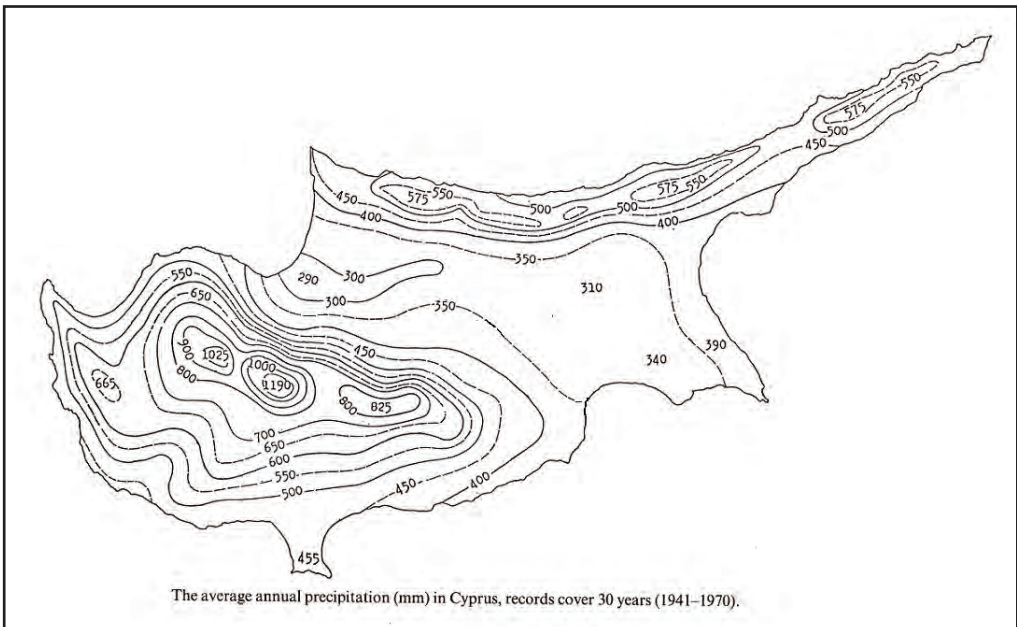


Figure 3. Average annual rainfall (mm) 1941–1970, the most recent period covering the whole island of Cyprus (there is no data from the north of the island after 1973). Rainfall has declined since 1970 but the pattern of distribution has remained the same, *ie* highest in the two mountain ranges and lowest on the Mesaoria plain (map redrawn from Department of Meteorology 1972).

significant nest predators (eg Took 1972, COS 1977, Flint & Stewart 1992, Baier *et al* 2013); higher temperatures would be expected to make them active earlier in the spring.

Rainfall on Cyprus (Figure 3) often varies greatly from year to year, with both extremely wet and severe drought years occurring. At times in earlier centuries prolonged droughts have caused the death of forest trees, the drying of springs and wells, crop failure, famine and emigration (Christodoulou 1959, Thirgood 1987). An analysis from tree rings shows that sustained droughts, 2–6 years in length, have occurred in small clusters of years three times in the last 250 years: 1806–1824, 1915–1934 and 1986–2000 (Griggs *et al* 2013). During the 20th century average annual precipitation was 559 mm in the first 30 years and 462 mm in the last 30 years, a decrease of 17%. In the first 17 years of this century (2001–2017) the annual average has been 473 mm (calculated from Department of Meteorology 2018a & b), *ie* no further decrease during this period. The decrease in the 20th century occurred in a step change c1970 and during the winter months December–February, when most rainfall occurs, with little change in other months. The decrease has been greatest (15–25%) in the Troodos mountain range above 500 m asl and least (6–15%) on low ground (Rossel 2001). The reduction in the annual rainfall total has been accompanied by reductions in the number of days with rain, in the number of periods of consecutive wet days and in the number of days with high or very high precipitation (Katsanos *et al* 2017).

Since 1970, drought and severe drought years have become more frequent, *ie* during 1901–1970 they occurred on average once every seven years but during 1971–2017 they have occurred on average once every four years. Also since 1970, very high and extremely high rainfall years have become much less frequent, *ie* during 1901–1970 they occurred on average once every 3.5 years but during 1971–2017 they have occurred on average once every 12 years. The most striking change has been the complete absence of extremely high rainfall years since 1970, whereas there were ten previously (severe drought, drought, very high and extremely high rainfall years are defined as having $\leq 70\%$, 71–80%, 121–130% and $>130\%$ respectively of normal precipitation, *ie* the 503 mm 1961–1990 average, Department of Meteorology 2018a).

Heavy rain can cause soaking, chilling and increased mortality in birds; species with smaller body mass are especially vulnerable (Kennedy 1970, Hume 1986). Heavy winter rain may also wash insects from vegetation (Kennedy 1970), and on Cyprus, unusually high winter rainfall may cause high mortality of over-wintering stages of arthropods, reducing their availability in the following breeding season (Jones 2006). The now less wet winters may thus have improved the overwinter survival of resident breeders, and improved their arthropod food supply, both during the winter and in the following breeding season. Such changes might be expected to have most effect on smaller species, where winters are coldest and wettest and where the reduction in rainfall has been greatest, *ie* within the Troodos massif. The hotter and drier summers, and the increased frequency of droughts, may have been detrimental to breeding success, particularly for migrant species which tend to breed later in the spring (see below), and for those breeding in the hottest and driest part of the island, the Mesaoria plain (eg JME Took in COS 1974).

High temperatures and aridity often influence the southern breeding distribution limits of European bird species (Huntley *et al* 2007); this may be particularly so on Cyprus as it is the most arid of all the large Mediterranean islands and the only one with a semi-arid climate (Koundouri 2007).

Wetlands and water bodies

The aridity of the Cyprus climate means that there are no permanent natural wetlands or water bodies apart from a few perennial streams on Troodos. There are seasonal salt

lakes near Larnaca and on the Akrotiri peninsula; the latter occasionally holds water all year. There are also a few mainly small seasonal freshwater lakes and marshes, the most important of which is Famagusta freshwater lake; a larger semi-natural wetland complex which was historically important for breeding water birds and in years of adequate rainfall is still so (eg Whaley & Dawes 2005, Charalambidou & Gucel 2013, Birdlife Cyprus 2014). The absence of permanent natural wetlands and water bodies combined with periodic droughts means that until the construction of large numbers of modern dams/reservoirs it was unlikely that waterbirds bred regularly.

Three shallow reservoirs were built on the eastern Mesaoria c1900; of these the most important, Koukklia, has many historical and recent breeding waterbird records though in the past the reservoir has also at times been disused. The Mesaoria reservoirs were not a success and no more dams were built until the 1940s, when limited construction of small modern dams began (Christodoulou 1959). Dam construction has greatly increased in more recent decades: total reservoir water capacity (million m³) increased from 6 in 1960, to 65 in 1981 to 327 in 2008, with the largest increase in the 1980s. Currently there are 51 small dams and 56 large dams (not including recent small dams in the north of the island); half of the small dams have been constructed since 1966 and half of the large dams since 1980. Cyprus now has the most large dams/unit area of any country in Europe (Water Development Department 2017). The construction of modern sewage farms/water treatment works, particularly at Nicosia, has provided year-round relatively disturbance-free habitat for water and wading birds.

These increases in artificial water bodies/wetlands were concurrent with and apparently largely responsible for the increasingly frequent and subsequently regular breeding of several waterbird species. With their changing water levels dam reservoirs can be unsuitable for breeding waterbirds, but this is often not so, eg of 15 modern dams (two large, 13 small) visited 1998–2002 in the north of the island, Little Grebe *Tachybaptus ruficollis* bred at 11 and probably bred at another three, Common Moorhen *Gallinula chloropus* and Eurasian Coot *Fulica atra* bred at ten each and Mallard *Anas platyrhynchos*, Black-winged Stilt *Himantopus himantopus* and Spur-winged Lapwing *Vanellus spinosus* at three each. The two large reservoirs, Kanli and Geunyeli, both had all six species breeding (Kuşkor 1999–2003).

Forest and scrub

The forests of Cyprus have a long history of serious degradation, clearance and decline, reaching their lowest point during the early–mid 20th century (Thirgood 1987). In 1949 forest covered 13.7% of the island (of which 0.8% was dense and 12.9% open forest); tall scrub covered a further 2.2%. In 1959 designated forest covered 19.1% of the island's area but of this only c20% was fully stocked with trees, the remainder being sparsely wooded or was scrub (Christodoulou 1959). Since then the extent and quality of forest and scrub have greatly increased: in 2006 forest and tall scrub covered 32.2% of the island, of this 18.6% was forest (tree height >5 m, crown cover >10%) and 13.6% maquis (shrubs up to 5 m). A further 9.5% was garrigue (subshrubs: 0.5–0.8 m) (Hadjikyriakou 2005, Department of Forests 2006). In 2012 the total area of forest and scrub was the same (European Environment Agency 2017a).

There are two main reasons for these increases. Firstly, a long-term policy of reforestation, mainly through replanting and the better protection of existing forests. The exclusion of free-range goats has been of particular importance in allowing natural regeneration to widely occur. This reforestation has been mainly in the hills and mountains but to a lesser extent also on low ground. Prior to the British administration of

the island in 1878, the plains, their adjacent coastal areas and the towns and villages there, including Nicosia, had been largely treeless. But from then onwards, and especially during the last century, plantations/small forests were established at many places on low ground, eg at Athalassa and Government house (Nicosia), Salamis (near Famagusta) and Phassouri (near Akrotiri salt lake). The species involved were mainly *Eucalyptus*, *Pinus*, *Cupressus*, *Acacia* and *Tamarix*. During the latter half of the century, as a result of the Goat Exclusion Law and the Village Tree Planting Areas Law there was further extensive tree planting on low ground, in the form of small plantations, wind-breaks and groups of trees (Chapman 1952, Christodoulou 1959).

Secondly, the percentage of Cyprus's area utilised for agriculture has decreased, eg >63% in 1949 (based on aerial photos—Christodoulou 1959) but 48% in 2012 (based on satellite photos—European Environment Agency 2017a). This decrease continues, eg in the south and west of the island there was a 24% decrease in utilised agricultural area 2003–2010 (Eurostat 2012). Vineyards, which are almost entirely within the Troodos massif, declined from 414 km² in 1929 (Christodoulou 1959), to 288 km² in 1960, to 190 km² in 1999 (Panayides 2005) and to 66 km² in 2015 (Statistical Service 2017). This continuing agricultural abandonment and its associated rural depopulation have resulted in extensive regrowth of forest, woodland and scrub on the abandoned land (Thirgood 1987, Hadjikyriakou 2005). The increase in tree planting and in forest and scrub area and quality has probably benefited species like Northern Goshawk, Long-legged Buzzard *Buteo rufinus* and Long-eared Owl, and enabled the spread of the last to low ground. Such changes would also increase the habitat for species like Common Blackbird *Turdus merula*, Cetti's Warbler, Sardinian Warbler *Sylvia melanocephala*, Spanish Sparrow *Passer hispaniolensis* and European Greenfinch.

At the end of the 19th century the mountain forests were subject to extensive human disturbance (from unrestricted timber and fuel extraction, resin tapping, charcoal burning and goat grazing) but such disturbance greatly reduced as these activities were banned or strictly controlled (Christodoulou 1959, Thirgood 1987). This and the continuing rural depopulation are likely to have reduced disturbance and persecution of forest birds, especially the larger species.

Other environmental changes

Irrigable land increased from 8.8% to 26.6% of utilized agricultural land 1960–1999 (Panayides 2005) partly as a result of the Southern Conveyer Project, Phase 1 of which was completed in 1994 and which pipes water from the Troodos mountains to agricultural areas in the southeast. This and other recent schemes now irrigate c230 km² (Water Development Department 2017).

Agricultural intensification has resulted in many changes: pesticide use increased from 3.2 kg/ha in 1970 to 15.2 kg/ha in 1994 and fertilizer use increased from 335 kg/ha in 1960–1970 to 494 kg/ha in 1990–1999; fallows reduced from 33% of total agricultural land in 1960 to 3.2% in 1999. Other changes include enlarged field sizes, a cessation of terracing and the clearance of stone walls, trees and scrub from field margins (Panayides 2005, Hellicar 2006).

Large reductions in the numbers of domestic animals, notably donkeys and free-range goats, combined with legislation for the hygienic disposal of carcasses (Iezekiel *et al* 2004), both in the wild and at abattoirs, have severely reduced the carrion available for vultures and eagles.

Land used for urbanisation increased from 0.26% of Cyprus's area in 1949 (Christodoulou 1959) to 6.4% in 2012 and including industrial and commercial sites, mines, airports *etc* to

9% (European Environment Agency 2017a), resulting in the loss of some natural habitats, especially in coastal areas and the lower hills.

Hunting (shooting)

In the past this had a significant adverse impact on breeding birds (eg Waterer 1954, COS 1959, 1960, Magnin 1987) and especially on water/wading birds, in some cases resulting in breeding failure (eg Bourne *et al* 1964, COS 1972, Rayner 1982). Wilson (1954) mentions the increasing numbers of guns from the 1920s onwards, and their adverse impact. That many water/wading bird species now breed regularly suggests a now more benign hunting environment. The end of spring hunting, initially in 1991, but now continued by the EU Birds Directive and Republic of Cyprus legislation (BirdLife Cyprus 2017a) will be important in this—hunting is now not permitted during March–early August.

EXTINCTIONS

Cinereous Vulture *Aegypius monachus*

Non-breeding status: accidental visitor. *Breeding:* former resident; apparently at least 15 times less numerous than the also resident Eurasian Griffon Vulture *Gyps fulvus*. It was not common; one or two pairs nested in both mountain ranges prior to 1950 (Bucknill 1909/1910, Jourdain 1929a, Waterer 1954). Numbers had declined by the mid 1960s, from when there were only 12 records, all of single birds, until the last in 1982. It is possible that some of these later records refer to vagrants from Turkey rather than residents. One record since: a vagrant/accidental visitor remained 2002–2007. The very large reduction in the availability of carrion was probably the main cause of its extinction. Poisoning, persecution and disturbance, which have contributed to the decline in the local Eurasian Griffon Vulture population (Iezekiel *et al* 2004) were probably also factors.

Eastern Imperial Eagle *Aquila heliaca*

Non-breeding status: occasional visitor. *Breeding:* a former resident, with perhaps 12 pairs in 1958 but only one or two pairs by 1992 with the last presumed residents seen 1995. Four records since (2002, 2005, 2006) of presumed immigrants. The reasons for its extinction probably include some or all of those listed above for Cinereous Vulture. Elsewhere this species feeds mainly on medium sized mammals (Cramp & Simmons 1980), but hares *Lepus* are the only such mammals on Cyprus (Kryštufek & Vohralík 2001) so the Cyprus population may have relied to a greater extent on carrion and thus been vulnerable to the near loss of that food source and to poisoning.

Lesser Kestrel *Falco naumanni*

Non-breeding status: passage migrant in variable numbers, now less numerous than in the 1950s and 1960s. *Breeding:* a former summer visitor but with a poorly known history on the island. Lilford (1889) found it an ‘exceedingly abundant’ breeder and Bucknill (1909/10) described it as a ‘very common’ summer visitor, though much less numerous than the Common Kestrel *Falco tinnunculus*. Jourdain (1929a, b) saw a mating pair in Nicosia and found a large colony (including a few Common Kestrels) breeding in holes in Famagusta city walls; he described the species as breeding commonly in rocks and old buildings, in colonies and singly, in the plains and in the hills. The next, and final, mention of breeding is Waterer’s (1954) general comment that the species is a ‘common breeding summer visitor’; though it is not clear which years within his 1928–1950 residence he was referring to.

This species has undergone serious long-term declines in Europe, believed to be due to massive pesticide use, loss of nest sites, agricultural intensification, and persecution and disturbance at its urban colonies (eg Hagemeyer & Blair 1997, Orta & Kirwan 2018); most of these factors are present on Cyprus. Bannerman & Bannerman (1971) stated that on Cyprus ‘Kestrels of any species have been relentlessly shot’ and believed this may have been the reason for this species’ extinction. The Common Kestrel *Falco tinnunculus* though remains common and widespread so perhaps other factors were more important. Declines in Syria have been linked to persecution (Baumgart *et al* 2003) and in Israel to excessive pesticide and rodenticide use (Shirihai 1996, Orta & Kirwan 2018). It formerly bred in Lebanon, and did so again in 2001, the first breeding for over 40 years (Ramadan-Jaradi *et al* 2008). On Cyprus 1–3 were present in summer 2015–2017 and of the former breeding species this seems the most likely to re-establish.

Black-bellied Sandgrouse *Pterocles orientalis*

Non-breeding status: a scarce/occasional winter visitor and possible passage migrant. *Breeding:* its history on the island is poorly known—formerly a common resident on the Mesaoria plain but by the 1970s–1980s it was scarce. Subsequently recorded in ten years 1992–2015: apart from one bird drinking at Akhna dam on six dates July–early October 2007, all records have been mid October–early May and usually January–April, singly or in flocks up to 50 and probably of winter visitors. It is possible that a few undetected breeders remain; if so they might be expected to visit reservoirs during the breeding season but the 2007 records above are the only such records so on balance the resident population is probably now extinct (see also Stylianou 2013). It remains possible that a few immigrants might attempt to breed in favourable years.

Within Europe the main threat to this species is intensification of agriculture, including loss of fallows and increased use of agrochemicals; agricultural abandonment and hunting are additional factors (Hagemeyer & Blair 1997, BirdLife International 2017); all these factors are present on Cyprus. Waterer (1954) gave the reason for its reducing numbers as shooting, which continues (eg BirdLife Cyprus 2017a, p94). Also, it feeds mostly on seeds and is associated with a wide variety of grasses and flowering plants, especially after rains (Cramp 1985), so the increased frequency of drought and severe drought years after 1970 may have been an additional factor in its decline; in severe drought years winter rainfall in its former breeding areas can be as low as c100 mm (Michaelides & Pashiardis 2008), below the 200–500 mm annual precipitation range for the species (Hagemeyer & Blair 1997).

White-throated Dipper *Cinclus cinclus*

Non-breeding status: there are no records of immigrants. *Breeding:* former resident along the few perennial streams in the higher Troodos mountains. First recorded 1887, there were a fair number of records 1907–1909, when it was described as ‘tolerably common’ by Horsbrugh who shot ‘a nice series of adults and juveniles’ (in Bucknill 1909/10); perhaps as a result of this it was subsequently listed as ‘not common’ (Bucknill 1910). Jourdain (1929a, 1930) described it as rare, with a few pairs only. The only definite later records are 1939 (DF Davidson *per* WRP Bourne *pers comm*) and 1945 (Flint & Stewart 1983, 1992). Waterer (1954) commented that it was present only in small numbers and not easy to see (sometime 1928–1950).

Possible reasons for the decline and extinction of the species include a period of adverse climatic conditions and shooting, or perhaps a combination of the two. In addition to the collection of museum specimens by Horsbrugh and Glaszner, Bucknill (1909/10) mentions that despite protection birds continued to be shot for food. Also, the 1907–1909 records

occurred at the end of a six year period during which rainfall averaged 115% of normal (Department of Meteorology 2018a) and thus they may have represented a peak in the population. The breeding records were from c1200–1300 m asl; the area of land above 1200 m asl is small with limited suitable habitat so this isolated population must always have been small and as such vulnerable to extinction from random variation or catastrophe (Shaffer 1981, Hagemeyer & Blair 1997). The Cyprus population was near the southern limit of the species' breeding range in Europe (Cramp 1988) where its density reduces and its distribution becomes patchy (Hagemeyer & Blair 1997) and high temperatures and aridity might be expected to limit its distribution (Huntley *et al* 2007).

Temperature and aridity increased on Cyprus during the 20th century and although these increases were most marked in the later decades there was an earlier and unprecedented arid period. On Troodos rainfall had shown a generally downward trend after 1920 (Rossel 2001) and during 1931/1932–1933/1934 there occurred three consecutive years of drought (two of them severe) during which rainfall there averaged only 62% of normal (Rossel 2001). This was the driest three year period during the 1901–2017 historical precipitation record (Department of Meteorology 2018a & b). The base flow of the Troodos streams is from springs fed by ground water (Water Development Department 2002); Mederer (2009) showed that on Troodos a 10% reduction in precipitation can reduce groundwater recharge by 30%; thus the 1931–1934 drought is likely to have caused a disproportionately severe reduction in stream flow. This may have reduced the already small population of White-throated Dipper to a level from which it was unable to recover. That Davidson considered a 1939 record of significance (above) suggests that the species was by then scarce. It is noteworthy that the years in which this species declined coincided with the 1915–1934 drought cluster period, one of only three such periods in the last 250 years (Griggs *et al* 2013). The lower aridity limit of the White-throated Dipper's breeding range is AET/PET ≥ 0.5 though it mainly breeds in moister areas where AET/PET = 1.0 (Huntley *et al* 2007). Average annual rainfall on Troodos has reduced 15–25% since c1970 (Rossel 2001) and AET/PET there (at Prodomos, 1380 m asl) is now at the species' lower limit of 0.5. Drought/severe drought years also now occur on average once every four years. In such years Troodos will be more arid, making the island now probably climatically unsuitable for the species. Its environment is also now further degraded by water extraction from the streams for irrigation and domestic use.

The taxonomic position of the now extinct Cyprus population of White-throated Dipper '*olympicus*' is uncertain but it had apparently not evolved distinct insular characters (eg Vaurie 1959, Roselaar in Cramp 1988, Roselaar 1995, Shirihai & Svensson 2018). Also, given the island's long history of periodic, severe and sometimes prolonged droughts, it is questionable how long this species had been breeding on the island and thus whether '*olympicus*' had any validity as an endemic taxon. In this respect it may be significant that the species was not encountered by Sibthorp (1787) during his visit to Troodos, nor was it mentioned to him by the islanders. A DNA analysis of specimens from Cyprus and southern Turkey might show whether or not there is any molecular phylogenetic difference between the two.

Dead Sea Sparrow *Passer moabiticus*

It colonised and then became extinct during the period covered by this review. Its population persisted probably 1976–1990, so more than ten years and thus eligible for inclusion here. *Non-breeding status*: vagrant. *Breeding*: the species, and a breeding colony, were discovered on the island (at Akrotiri salt lake reed beds) in 1980; with hindsight the colony had probably existed since 1976. Breeding was not proven in all years but is assumed

to have been continuous throughout the colony's existence. Maximum population was 20–30 pairs in 1985, spread over three sub-colonies along the northern shore of the lake. The population apparently declined quickly after that; the last record of probable breeding was of four singing males there late April, late May and early June 1990. Subsequently four birds were there late March 1991 and two there mid February 1994, which are the last records from the colony site. A pair also bred at Zakaki (nearby) in 1983. Breeders were apparently mainly dispersive or migratory. During the period of the colony's existence there were occasional records from elsewhere of presumed wanderers/vagrants; only two such records since, 2005 and 2006. These are the last confirmed records of this species from the island in the literature and in the knowledge of Colin Richardson (pers comm – BirdLife Cyprus Recorder at the time) and of Jane Stylianou (pers comm – current BirdLife Cyprus Recorder). Thus the unsourced statement 'small numbers considered still to breed on the island' (Summers-Smith 2018) appears to be unsupported. *NB:* A 1973 record attributed by Cramp & Perrins (1994) to Summers-Smith (1988) is not mentioned by the latter author. There is no 1973 record in the Cyprus literature nor in the BirdLife Cyprus database (Jane Stylianou pers comm); it appears to be erroneous, perhaps a transcription error.

During the main period of the Dead Sea Sparrow colony's existence, there were no drought or severe drought years and annual rainfall (1975/1976–1988/1989) averaged 100% of normal. The colony's extinction coincided with the onset of a cluster of drought years, only the third such in 250 years (Griggs *et al* 2013) with a drought in 1989/1990 (72% of normal rainfall) and a severe drought in 1990/1991 (56%). Given the species' pronounced attachment to open water (Cramp & Perrins 1994), the resulting drying of the area may have made the habitat unsuitable for breeding. Its population decline had apparently started before this though, so other factors may also have been involved, including disturbance from birdwatchers following the publicising of the colony's presence and location.

Additional species

The Greater Short-toed Lark greatly reduced in numbers during the last century and may be near extinction as a regularly breeding bird. The Marbled Duck apparently bred frequently in the past, though probably not regularly; it no longer breeds on the island. The history of these two species is described below.

Marbled Duck *Marmaronetta angustirostris*

Non-breeding status: occasional visitor. *Former breeding status:* poorly known; there are breeding records (of one to a few pairs) only from 1875, 1888, 1910 and 1914. Waterer (1954) described it as a sometimes fairly plentiful summer visitor and suspected it bred at Limassol (sometime 1928–1950); his 'sometimes' would accord with the dispersive and nomadic nature of the species (BirdLife International 2004). Also, the impermanent nature of the island's wetlands means it was unlikely to have bred regularly. Only five records of migrants/visitors since, the last in 2008. The species suffered marked declines and local extinctions in Europe and the east Mediterranean region during the 20th century; its extinction on Cyprus fits this pattern. The reason for its decline elsewhere was apparently mainly habitat loss/degradation and possibly hunting (BirdLife International 2004).

Greater Short-toed Lark *Calandrella brachydactyla*

Non-breeding status: a common passage migrant, most numerous in spring. *Breeding:* formerly a common migrant breeder on the Mesaoria, mainly in the east. Many were still breeding there in 1971, and fair numbers in 1972 but in the 1973 breeding season after a winter drought, although pairs were present in the same area, there was no sign

of breeding (JME Took in COS 1974). After the division of the island in 1974 coverage of the breeding areas was lacking or poor for many years. The species was not recorded in its former breeding areas 1998–2001 (Kuşkor 1999–2003). Possible breeding in the east/southeast by a few birds (max seven) was noted in eight years 1992–2013. There were no summer records 2014–2016 and breeding surveys on the eastern Mesaoria in 2015 did not locate it (BirdLife Cyprus 2017a). Since 2008 it has been listed as an Occasional rather than Regular breeder by BirdLife Cyprus. The plain is a large area and it is possible that a few pairs still breed undetected.

As implied above, reduced rainfall may have been a factor in its decline. In Europe it breeds where $GDD5 > 2000$ degree days and where there is moderate to severe seasonal moisture deficit with $AET/PET < 0.8$ (Huntley *et al* 2007), and in Israel it breeds where rainfall is as low as 100 mm (Shirihai 1996). On Cyprus in the southeast in normal years AET/PET is 0.19–0.20 and $GDD5$ is $c5500$ degree days. Average annual rainfall there is 300–350 mm (Department of Meteorology 2018b). These figures lie within the species' breeding parameters. However, the 1972–1973 drought was the most severe on record, with whole island average rainfall of 213 mm, only 42% of normal (Department of Meteorology 2018a). The plain in spring 1973 was 'like a desert, instead of its usual lush green, and without a blade of corn or grass' (JME Took in COS 1974); this may have caused the apparent breeding failure in that year. Droughts have increased in frequency since then. Agricultural intensification and high pesticide use caused a large reduction in numbers of breeders in Israel (Shirihai 1996); these factors are present on Cyprus also.

APPARENT COLONISATIONS

Of the 15 apparently colonising species, 12 appear to be genuine new colonists (Table 2), and three to be previously overlooked long-term breeders (Table 3).

Little Grebe *Tachybaptus ruficollis*

Non-breeding status: passage migrant and winter visitor in variable numbers. *Breeding:* bred in large numbers at Koukليا reservoir 1910. In the 1960s it was usually absent May–July but was present all year 1967 and bred at Koukليا 1969. After that it became an increasingly frequent breeder when water levels were favourable, and with the exception of 1986–1987, breeding has been confirmed every year since 1980. The numbers breeding and the number of sites used (maximum $c30$) vary greatly depending on water levels; breeding is usually at the reservoirs though some natural sites are also used. A presumed resident population has established though opportunist breeding by winter visitors/migrants almost certainly still occurs. *Population:* 50–150 pairs in 2008–2012. The now regular breeding appears to be due to the construction of large numbers of artificial permanent water bodies and perhaps to reduced persecution. With the possible exception of the next species, these reasons are probably responsible for the now regular breeding by the other waterbird species listed in this section.

Western Cattle Egret *Bubulcus ibis*

Non-breeding status: formerly a scarce migrant, mainly in spring, with 1–2 records/year in the 1970s, increasing to 2–6 records/year in the 1980s and becoming more frequent still in the 1990s and early 2000s, with birds occurring all year. *Breeding:* first confirmed 2004 (a colony of $c12$ pairs at Famagusta freshwater lake, Whaley & Dawes 2005). By 2014 this colony had increased in size to 320 nests and the species is now resident, with non-breeding season roosts of 400–600. Has also bred at Oroklini marsh since 2014 ($c30$ pairs). This species is much less dependent on wetlands and water bodies than the other waterbirds

listed here (Cramp & Simmons 1977). Its colonisation is probably mainly driven by its association with man and his grazing animals and by increased immigration resulting from its spread in Europe (Hagemeyer & Blair 1997, BirdLife International 2004) and the east Mediterranean region (Kirwan *et al* 2008, Shirihai 1996, Goodman & Meininger 1989, Isenmann *et al* 2016).

Mallard *Anas platyrhynchos*

Non-breeding status: common winter visitor and autumn passage migrant. *Breeding:* first confirmed 1970; during the 1970s and 1980s 1–3 pairs probably bred in all years when water levels were suitable. Breeding has been confirmed every year since 1993; at 1–5 sites/year until 2008, increasing to 19 sites in 2012 but at only 6 sites in 2014 and at only three in 2016, both years of low water levels. Usually 1–3 pairs breed at each site, exceptionally up to 6. Believed to be resident; the wide variation in the number of sites used per year suggests that opportunist breeding also occurs. *Population:* 30–100 pairs in 2005–2012. The numbers of winter visitors increased 200–1000% during 1980–2012 (BirdLife International 2015), perhaps attracted by the more numerous water bodies; this may have resulted in increased opportunist breeding at the winters' end. The species has colonised Israel since the 1950s (Shirihai 1996) and first bred in Lebanon in 2005 though attempted earlier (Ramadan-Jaradi *et al* 2008).

Northern Goshawk *Accipiter gentilis*

Non-breeding status: apparently a scarce passage migrant and very scarce winter visitor though the increasing numbers of residents tends to now obscure any immigration. *Breeding:* its history on the island is poorly known; possibly breeding in the Paphos forest 1979, when individuals were found on three occasions late May and early June (Flint 1981). One there April 1980, then no records until 1984 when three or four nests were found January–May, with 15 records of 12 birds May–early October (Rudolph 1990). After which no definite summer or breeding season records until 1992, then none again until 1998 since when birds have usually been recorded all year, sometimes with juveniles in summer and breeding confirmed 2004, 2005 (6+ nests), 2006 and 2013. Given the elusive and inconspicuous nature of this species (Cramp & Simmons 1980), the large size of the Paphos forest and the former difficulty of access, combined with the very small number of active observers in earlier decades, the species was probably breeding unrecorded throughout the 1980s and 1990s and possibly since 1979 or earlier. *Population:* 80–120 pairs in 2008–2012.

This species shows a strong preference for nesting in large, mature forests with a low degree of disturbance by humans, especially where bird killing is significant (Rutz *et al* 2006), as on Cyprus. Thus the recovery and increase in area of the Cyprus forests during the last century, accompanied by a reduction in disturbance and persecution there, may have created suitable breeding habitat which immigrants were able to exploit. Nevertheless, it remains possible that this is a long-overlooked scarce breeder, rather than a new colonist; on balance the latter seems more likely. The only record of a shot bird from Troodos is from August 1910; at that date possibly an immigrant. It was not reported from the Troodos/Paphos forests by DF Davidson (in Bannerman & Bannerman 1958) nor by Waterer (1954), both of whom were forest officers and thus likely to encounter it. In the burst of activity 1957–1958 after the founding of the COS there were 14 records, mainly from the hills and mountains, but all October–mid April. In 1975 Mason (1980) recorded it on Troodos only in late September. It is perhaps more likely that it was a former occasional breeder, or that it bred before the forests were degraded and disturbed and hunting became widespread.

Long-legged Buzzard *Buteo rufinus*

Non-breeding status: scarce winter visitor and passage migrant. *Breeding:* in winter 1991/92 a pair was found nest building in the southern Troodos mountain range and it was thought likely that the site had been used previously. Since 1992 the species has bred annually in the southwest; the population is increasing, spreading eastwards into Nicosia, Larnaca and Famagusta administrative districts and north into the Kyrenia mountain range, and is resident (Whaley & Dawes 2003, Kassinis 2009, BirdLife Cyprus 2003–2018a, Colin Richardson pers comm). *Population:* 80 pairs in 2017 (Nicos Kassinis *per* Colin Richardson pers comm).

Given the recent extinction of large raptors on Cyprus, it is unexpected that this medium-sized raptor should have now successfully colonised. A warming climate has been suggested as a possible reason for the species' northwestward range expansion in Europe (Mrlik & Landsfeld 2002) but it is not immediately obvious how such warming would cause this species to spread southward into Cyprus. On Cyprus the species requires mainly open habitats in its territories (Kassinis 2009, Iezekiel *et al* 2016) but agricultural area has decreased while forest and scrub area has increased so habitat change may not be an important factor in its colonisation. However rural depopulation and agricultural abandonment may have reduced disturbance and persecution and so aided colonisation (shooting has declined though it remains a problem, Kassinis 2009). The species was formerly a very scarce visitor to Cyprus (Stewart & Christensen 1971) but is apparently now less scarce, perhaps because its population in countries to the north and northwest of Cyprus has greatly increased since the 1980s–1990s (Lawicki *et al* 2013, Birdlife International 2015); such an increase in potential colonists may be one of the reasons for the rapid and successful colonisation. On Cyprus the species' high diet diversity and limited dependence on carrion (Kassinis 2009, Bakaloudis *et al* 2012) may make it less vulnerable to poisoning and better able to cope with fluctuations in dietary resources, compared with larger raptors.

Common Moorhen *Gallinula chloropus*

Non-breeding status: passage migrant and winter visitor in variable numbers. *Breeding:* formerly bred in years when water levels were suitable but scarce or absent in summer in non-breeding years; it now breeds regularly. Breeding first recorded 1910, confirmed in four years of the 1960s, four years of the 1970s, eight years of the 1980s, and every year since 1992. Probably 40–50 sites are used in favourable years, as few as ten in dry years; usually 1–3 pairs/site. Believed to be now resident; some opportunist breeding probably still occurs. *Population:* 50–150 pairs in 2006–2012.

Eurasian Coot *Fulica atra*

Non-breeding status: usually a common winter visitor and passage migrant. *Breeding:* first confirmed 1910 ('very large numbers', Bucknill 1911). Wilson (1954) who was on Cyprus 1903–1946, stated that it breeds in 'suitable seasons'. Not recorded as currently breeding by Bourne *et al* (1964). Subsequently bred 1967 and 1969, in three years in the 1970s, in eight years in both the 1980s and the 1990s and every year since 1998. The number of sites used/year varies greatly depending on water levels, with probably *c*25 in favourable years. Usually less than ten pairs/site, sometimes tens, up to 50. Believed to be resident though opportunist breeding by winter visitors probably also occurs. *Population:* 100–250 pairs in 2005–2012. The wintering population increased 300–800% during 1980–2012 (BirdLife International 2015) and this may have led to more opportunist breeding. Winter visitors probably originate mainly in the Ukraine and Russia (BTO 2018) where breeding

populations show a long-term decline (BirdLife International 2015), so the wintering increase on Cyprus is apparently related to the now numerous water bodies rather than to an increase in the source population.

Black-winged Stilt *Himantopus himantopus*

Non-breeding status: common spring passage migrant, scarce on autumn migration. Since 2009 regular overwintering has occurred, with 1–10 individuals at up to six sites, perhaps a reflection of the now milder winters. *Breeding:* in the past apparently an opportunist migrant breeder probably in all years with sufficient water levels, it now breeds regularly. There are historical breeding records from 1905, 1911–1914 and 1950. Baxendale (1915) stated that ‘it now breeds regularly at Kouklia reservoir and the fresh water lake’. In recent times it was recorded breeding in most years 1969–1999 and in every year since. In the last century only one or two recorded breeding sites/year, but more recently 12–14 sites in favourable years, as few as four in dry years. Usually 1–20 pairs/site, occasionally up to 50–70. Although an opportunist breeder, the now regular breeding probably means that many individuals return in subsequent years. This species’ exotic nature, colonial breeding and persistent noisy mobbing of intruders may explain why it has more historical breeding records than the other less conspicuous waterbirds listed here. *Population:* 50–200 pairs in 2008–2012.

Spur-winged Lapwing *Vanellus spinosus*

Non-breeding status: fairly common spring passage migrant, scarcer on autumn migration. *Breeding:* bred at the reservoirs in some years prior to 1910 when water levels were favourable. The first dated breeding record was at Kouklia reservoir in 1913. Wilson (in Bannerman & Bannerman 1958) stated that it bred at marshes and lakes round Famagusta in favourable years when they were not dried up (sometime 1903–1946). The second dated breeding record was in 1988; then with the exceptions of 1991, 1992 and 1997 (when birds were present in summer, but breeding was not confirmed) it has bred in every year since. The number of sites used/year has increased from one in 1988, to five in 1999, to 15 in 2009 but down to eight in the dry year of 2016. The number of pairs/site is usually 1–5, sometimes up to ten, once 24 (Nicosia sewage farm 2009, Charalambidou *et al* 2012). Breeding sites are sewage farms, marshes and lakes, reservoirs and farm slurry pits. Prior to this recent breeding it was occasional in winter but is now present all year and partly resident, perhaps because of the now milder winters and the safer over-wintering sites. *Population:* 61–68 pairs in 2009 (Charalambidou *et al* 2012).

Bourne *et al* (1964) stated that it ‘bred intermittently in the past but is now usually shot’. This is clearly not the case now; probably because spring hunting is no longer permitted. Also important in this respect are the sewage farms/water treatment plants, which provide relatively disturbance-free breeding and roosting sites throughout the year. Since c2012 other sites such as Oroklini marsh/lake and Achna dam have become increasingly important (BirdLife Cyprus 2014, Alison McArthur pers comm). In Israel this species has greatly expanded its range and numbers since the 1970s due to increases in irrigation and artificial water bodies (Shirihai 1996). Its population has also increased remarkably in the Gaza strip since the 1990s (Al-Safadi 2006) and it has bred in Lebanon 2006 and probably earlier (Ramadan-Jaradi & Bara 2009). These increases may have resulted in more potential colonists reaching Cyprus.

Common Blackbird *Turdus merula*

Non-breeding status: winter visitor in variable numbers to wooded areas on high and low ground, usually common or fairly common though in some winters less so; some passage migrants also occur. *Breeding:* first recorded in the breeding season in 1979 in the forests of the higher Troodos; by the late 1980s song and territorial behaviour were noted there. Breeding (5–20 pairs) at 1400 m asl was confirmed in 1994 (Kourtellarides 1998); the population has since increased and spread and is now well established and resident. In summer, singing birds mainly above 700 m asl, though some down to 400 m asl. *Population:* 200–400 pairs in 2008–2013.

Its colonisation began shortly after the large reduction in winter rainfall on Troodos; this and the now milder winters there may be factors in its colonisation. There has been recent habitat change on Troodos but extensive apparently suitable habitat was present before it colonised (pers obs). It has been a usually common winter visitor for at least a century (eg Bucknill 1909/10, Jourdain 1930, Waterer 1954, Stewart & Christensen 1971); such birds are potential colonists, but all normally leave at the end of winter (there were no summer records prior to 1979). During the 1950s–1980s the species greatly increased its population in Israel, believed to be due to habitat change (Shirihai 1996), and since 1975 it has also colonised the Nile delta and northeastern Sinai (Goodman & Meininger 1989, BirdLife International 2018); these increases in nearby countries may have resulted in more east Mediterranean-breeding colonists reaching Cyprus. It may be of significance to its colonisation that this is a highly adaptive species (Hagemeijer & Blair 1997) with an exceptionally diverse habitat range (Cramp 1988).

Sardinian Warbler *Sylvia melanocephala*

Non-breeding status: common winter visitor and passage migrant. *Breeding:* first known to breed in 1992 when a population of at least 13 pairs was discovered on the Akamas peninsula in the west of the island; in 1995 at least 50 pairs were present in a now wider area. Breeding had probably occurred there since 1988 if not earlier (Flint & McArthur 2014). In 2001 a second population of c6000 pairs was discovered in the eastern part of the Kyrenia mountain range in the north of the island, this population had clearly existed undetected for many years. These two populations have increased, spread and merged (Flint & McArthur 2014). The species now breeds throughout most of the southwest, west and north of the island and is starting to occur in the southeast. It is believed to be resident or mainly so. The rate of population increase 1997–2011 in Paphos administrative district in the west of the island was 16.4%/year or 356%/decade (Pomeroy *et al* 2016). *Population:* 60 000–110 000 pairs in 2013 (Hellicar 2016a).

Cyprus breeders are nominate *melanocephala* (Flint & McArthur 2014), indicating that colonists are from the north, rather than from the east (the Levant), where race *momus* breeds (Aymí & Gargallo 2018). This species was formerly scarce or uncommon as a winter visitor/passage migrant (Bucknill 1909/10, Jourdain 1930) but by the late 1950s it was fairly common in most winters, perhaps because of its spread in southeastern Europe (Hagemeijer & Blair 1997); this may have increased the number of potential colonists reaching the island. Recent climate change on the island may be an important factor in its colonisation; its larger body mass, better tolerance of aridity and its more sedentary nature, compared with the Cyprus Warbler *Sylvia melanothorax*, may have aided its rapid increase (Flint & McArthur 2014). Like Common Blackbird, this is another generalist species with a wide habitat range (Aymí & Gargallo 2018).

European Greenfinch *Chloris chloris*

Non-breeding status: a common winter visitor and passage migrant. *Breeding:* 'probable' breeding at Paphos with no details (Jourdain 1930); none was found breeding there in 1958. Present all year Akrotiri 1962 and breeding confirmed there and at adjacent Phassouri in 1963. Its increase and spread after that was extremely rapid: by 1971–72 it was breeding in many areas on high and low ground, including Troodos and Nicosia. During 1997–2003 it was one of the most frequently encountered species in censuses, occurring in all surveyed habitats (Pomeroy 2004). Believed to be resident. *Population:* 40 000–120 000 pairs in 2013 (Hellicar 2016a).

This has been a common or abundant winter visitor for at least a century (eg Bucknill 1911, Waterer 1954) but prior to 1962 there were no records after early April. The extreme rapidity of its increase and spread makes multiple colonisation sites likely, suggesting island-wide and/or external causal factors. Its breeding distribution on the island is closely linked to habitats with large trees; increases in these habitats during the 20th century may have been partly responsible for its colonisation. The main climate changes on the island occurred after its colonisation began, though there had been some warming previously. It may be of significance that since the mid 20th century it has also greatly increased in Israel following the development of agricultural settlements there (Shirihai 1996), and that since 1985 it has also colonised the Nile delta (Goodman & Meininger 1989, Clement & de Juana 2018). Like Common Blackbird and Sardinian Warbler, this is another species with a wide habitat range (Clement & de Juana 2018).

Eurasian Hobby *Falco subbuteo*

Non-breeding status: common passage migrant. *Breeding:* its history on the island is poorly known. Four unsubstantiated historical records of possible breeding: 1913 (2), undated (2). In 1957 there were 20 summer records from all over the island though no reports of breeding; the species was subsequently described as a common summer visitor (Bourne *et al* 1964). During 1958–1970 there were no reports of breeding and no summer records. During the 1970s and 1990s there were summer records from the Kyrenia mountain range and its northern slopes with probable breeding 1997–1998 and the first confirmed breeding for the island in 1999 with possible breeding at four other sites (Flint 2000). During 2000–2004, pairs, nests, recently fledged young or family parties were present at eight sites there (pers obs). Breeding confirmed there again 2007 and 2013–2018 (Damla Beton, Fred Wake both pers comm). Also, long believed or suspected to breed in the south and west of the island (eg Stewart & Christensen 1971, Whaley & Dawes 2003) where now frequently and widely seen in summer and autumn with occasional family parties/juveniles and breeding proven 2014 (Smith *et al* 2016). *Population:* 5–70 pairs and increasing. An earlier estimate of 20–70 pairs (BirdLife International 2004) perhaps more accurately reflects the minimum population.

This is either an overlooked long-term breeder or a new colonist; a review of its historical records and status (Flint 2000) concluded that the former seems the more likely. Its often unobtrusive nature during summer, plus its late breeding season, with family parties mainly mid August–mid October (pers obs), may mean that breeders have sometimes been mistaken for autumn migrants in the past. There appears to have been a recent and perhaps large increase in the number of breeding pairs, perhaps due to continuing reforestation/agricultural abandonment, and (as flying insects form the main part of its diet, BirdLife International 2015), to the many new water bodies providing an abundance of large dragonflies (Odonata) as food (Flint submitted ms).

Long-eared Owl *Asio otus*

Non-breeding status: scarce passage migrant and probable winter visitor. *Breeding:* probably bred in a plantation at Salamis (near Famagusta) 1963 and one or two pairs bred there 1968–1971 and present there 1973. Reported breeding in a plantation at Athalassa (near Nicosia) 1971 and it had probably bred there earlier. Subsequently recorded in the breeding season with increasing frequency with, from the 1980s, breeding records at c45 sites in the Troodos massif (up to c1350 m asl) and their adjacent coastal lowlands and on low ground in the centre and southeast of the island, including the suburbs of Nicosia. *Population:* 50–200 pairs in 2001–2013.

Prior to 1963 only six dated records 1878 (Lilford 1889), 1902 and 1903 (von Madarász 1904), 1912 (Cyprus Natural History Society 1913), 1957 and 1960, five of them November–January and one early May on the south coast, perhaps a migrant. The 1912 record involved seven birds on 6 December, this seems a high number for winter visitors and they were perhaps more likely residents. It was not encountered by Sibthorp (1787) but he was told that the ‘great horned owl’ is found in the mountains. As the Eurasian Eagle Owl *Bubo bubo* has not been recorded from the island, not even as a vagrant it seems likely that it was Long-eared Owl that was being referred to. The breeding of Long-eared Owl is easily overlooked (Cramp 1985) and may have been largely overlooked in Israel prior to the 1970s (Shirihai 1996). On Cyprus also it is probably a previously overlooked resident that has greatly increased in numbers and distribution, rather than a new colonist. During the 20th century reforestation in the hills and mountains and the establishment of plantations at many locations on low ground will have provided additional nesting and roosting habitat. The long term growth of the population in Turkey (Kirwan *et al* 2008, BirdLife International 2015) may have resulted in more potential breeders visiting Cyprus.

Woodchat Shrike *Lanius senator*

Non-breeding status: a spring passage migrant in variable numbers, occasionally scarce but more usually fairly common; scarce on autumn migration. *Breeding:* believed to have bred c1901–1903 (von Madarász 1904). In 1965 there was an early July record from where it was later found breeding, in 1980. Present in summer at ten sites in the southwest and west 1979–1990 and breeding proven at two in 1980 and at another in 1988. Recorded breeding with increasing regularity in the 1990s. In 1995 the first expedition to the Akamas peninsula found up to five pairs breeding (Stagg 1996) and in 2000, 20 breeding pairs were there, with two other pairs elsewhere (Dawes & Whaley 2001). There has been an apparent decline since, with no summer records in 2006 and 2010, and in other years usually present at only one to four sites, though at six sites in 2015. Now listed as an opportunist, occasional breeder (BirdLife Cyprus 2018a). A few pairs would be easy to miss in the west of the island; it is probably just about hanging on as a regularly breeding summer visitor. *Population:* 25–50 pairs during 2001–2012.

Its discovery on the Akamas and adjacent areas coincided with the commencement of regular observations there. Suitable breeding habitat (Yosef & International Shrike Working Group 2018) on the island is decreasing. In Europe it has suffered range contractions towards the southwest and southeast and decreases in numbers in most countries, mainly due to habitat loss/degradation (Yosef & International Shrike Working Group 2018); a range reduction has occurred in Lebanon also (Ramadan-Jaradi & Ramadan-Jaradi 1999). So on balance it seems more likely to be an overlooked long-term scarce breeder on Cyprus rather than a new colonist though this is a fine judgement. Reduced rainfall may be a factor in its apparent decline; Huntley *et al* (2007) give no minimum aridity (AET/PET) limit for the species’ breeding in Europe but in Israel it mostly breeds where annual rainfall is >400

mm (Shirihai 1996). At Polis, adjacent to the Akamas, average annual rainfall has declined from 474 mm to 394 mm (Department of Meteorology 2018b) but is below that in the now frequent drought years, *eg* only 258 mm in 2004/2005 (Department of Meteorology *per* Derek Pomeroy).

Additional species

The following eight species bred with increasing frequency during 2007–2016 and may be colonising. The Little Tern *Sternula albifrons* also appears to be colonising but as a seabird is not included in this review.

Black-crowned Night Heron *Nycticorax nycticorax*

Passage migrant, a few non-breeders over-summer. Occasional breeder since 1982. During 2007–2016 it bred in 2010–2011 and 2014–2016. Breeding since 2010 (by 2–4 pairs) has been mainly within the Cattle Egret colony at Famagusta freshwater lake.

Squacco Heron *Ardeola ralloides*

Passage migrant; non-breeders over-summer. Bred (2–4 pairs/year) 2004, 2006–2012 and 2014–2016 within the Cattle Egret colony at Famagusta freshwater lake (*eg* Whaley & Dawes 2005, Miltiadou 2011, Charalambidou & Gucl 2013). When breeding the species typically forms small nuclei in mixed-species colonies of other herons (Martinez-Vilalta *et al* 2018), so it is likely that the presence of the recently established Cattle Egret colony has encouraged it to breed.

Little Egret *Egretta garzetta*

Passage migrant; present in all months. Occasional breeder since 1981. During 2007–2016 it bred in nine years: 2007–2008 and 2010–2016 (possibly in 2006 and 2009 also). Breeding has been mainly within the Cattle Egret colony at the freshwater lake but also at four other sites, one to eight pairs breed/year. Some birds are now possibly resident.

Glossy Ibis *Plegadis falcinellus*

Passage migrant. First bred 2010 then every year since to 2016. Breeding (by 3–20 pairs/year) has been within the Cattle Egret colony at the freshwater lake (*eg* Miltiadou 2011). Glossy Ibis breeds colonially, almost always alongside other waterbirds such as herons and storks (Matheu *et al* 2018) so it is likely that the presence of the recently established Cattle Egret colony has encouraged it to breed.

Red-crested Pochard *Netta rufina*

Winter visitor. Bred 2009–2013 and 2015. Breeding, by 1–3 pairs/year, has been at Oroklini marsh and Kouklia reservoir.

Ferruginous Duck *Aythya nyroca*

Passage migrant and winter visitor, now regular in summer. Bred 2005–2007, 2009–2012 and 2015–2016. Breeding, by 2–6 pairs/year, has been mainly at Phassouri reed beds and Zakaki marsh, but also at three, probably four, reservoirs up to 70 km distant from those sites.

Laughing Dove *Spilopelia senegalensis*

At least five records of apparent immigrants: 1968, 2008 and 2011–2013, four of them late September–mid October. In 2011 up to six birds were in the southeast, in the Ayia Napa

area, April–August; since then it has spread rapidly and in 2017 was recorded at 21 sites, mainly in the south of the island. Usually 1–4 birds/site, though occasional flocks of 10–30. Breeding has been confirmed (eg Stylianou & Pentecost 2013); birds are present all year and believed to be resident. Some breeders may originate from releases/escapes (Hellicar 2016b), others from immigration: the initial breeding records were concomitant with records of immigration, though the presence of the local population now obscures any continuing immigration. The Laughing Dove's population in Turkey is large and increased 2000–2012 (BirdLife International 2015); it is the probable source of immigrants to Cyprus. The species was found breeding in Lebanon c55–60 years ago; it is now abundant in Beirut and is increasing in other coastal cities and towns (Ramadan-Jaradi *et al* 2008).

Grey Wagtail *Motacilla cinerea*

Winter visitor and passage migrant. Present all year 1968 in the higher Troodos, probably bred there 1969, 1987, 1999, 2010–2012 and 2016 and breeding confirmed 2013–2015. It is possible that breeding may have been overlooked in some apparently non-breeding recent years prior to 2010. This species is not mentioned by earlier authors who collected in summer along the Troodos streams in the late 18th and early 19th centuries and was not found breeding during extensive searches for Dippers along those streams in 1957–1958 and 1970 (Flint & Stewart 1983, 1992, pers obs) so its breeding does appear to be recent. Even so, it remains possible that it was a long-term scarce, perhaps occasional or opportunist breeder. Probably resident. Population: c12 pairs in 2018 and apparently increasing (Colin Richardson pers comm). Given the restricted habitat and the species' seasonal moisture deficit limitations (Huntley *et al* 2007) the maximum possible population size is likely to be very small.

PRE-EXISTING BREEDING SPECIES WHICH HAVE UNDERGONE LARGE AND LONG-TERM INCREASES

Eurasian Collared Dove *Streptopelia decaocto*

Non-breeding status: six records of presumed migrants at eastern capes 1972–1992. *Breeding:* the first reliable record of presumed residents is that of Lilford (1889) who saw one or two in Larnaca. Bucknill (1909/10, 1913) found it not uncommon in the Turkish quarter of Nicosia and stated that it also occurred in other towns. Belcher (1929) who was present 1928–1930, stated that small numbers bred in the towns. Ferrier (1936) saw it in Nicosia in 1933 and Waterer (1954) described it a fairly common breeder there (sometime 1928–1950). By the 1950s it had become scarce: in 1954 Bannerman & Bannerman (1958) found it only on the outskirts of Nicosia, and in 1956 could not find it anywhere and feared that it had been exterminated by shooting. A few birds were still present though, with five records of 1–4 birds 1956–1963 from Nicosia, Limassol and Akrotiri. In 1970 five or six pairs were found on the southwest outskirts of Nicosia, with four other birds by the Turkish quarter; the observers, SJ Christensen and JME Took (in COS 1971), were then living and working in the city so may have located birds missed by visitors. These records from 1970 suggest that a remnant of the former population had survived, though they may represent the beginning of a new colonisation. During the remainder of the 1970s and in the 1980s, numbers and distribution slowly increased so that by 1992 it was fairly common in Nicosia, Athalassa (near Nicosia) and parts of Limassol, and was recorded from many other towns and villages. Since then it has continued to increase and spread, mainly in urban areas but some now also in rural areas and at higher altitudes (eg Walsh & Pomeroy 2012). *Population:* 8000–15 000 pairs in 2013 (Hellicar 2016a); probably many more by 2018 (Colin Richardson pers comm).

The earlier population was described by Bucknill (1909/10) as almost semi-feral and by Belcher (1929) as semi-domesticated, suggesting that they were escaped/released cage birds. This would be expected for such an isolated population of this species in this region (Kasperek 1998). While a few birds apparently survived from this earlier population the increase and spread since the 1970s seems likely to have been the result of immigration, probably of dispersing young birds (Baptista *et al* 2018) from Turkey. Until 1950 the species' distribution there was mainly in the Aegean/Marmara region, but during 1966–1980 substantial numbers began breeding in the region of southern Turkey directly north of Cyprus, with more there in subsequent years (Kasperek 1998), coinciding with the initial increases and spread on Cyprus. If immigration was the origin of the present population, then the species might be considered a new colonist. Walsh & Pomeroy (2012) imply that the earlier records (prior to 1956) may have been of Barbary Doves *S. 'risoria'*, rather than Eurasian Collared Doves. Those responsible for the earlier records mostly appear to have been experienced and careful observers; it seems unlikely that they all made the same misidentification. The pattern of records from Nicosia (above) also suggests that the earlier and later populations there were of the same species. It is interesting to note that in Lebanon the species was considered extinct but has re-colonised and is expanding rapidly (Ramadan-Jaradi *et al* 2008); a pattern remarkably similar to that on Cyprus.

Zitting Cisticola (Fan-tailed Warbler) *Cisticola juncidis*

Non-breeding status: apart from apparent returning local breeders (below) there are no records of immigration. *Breeding:* in the 1870s–1880s it was common only in cereals or herbage bordering marshes (Guillemard 1888, Lilford 1889), though by 1909 it was fairly common in Paphos district with a few near Nicosia (Bucknill 1909/10) and was described as 'not rare' (Bucknill 1910). Jourdain (1930) described it as "resident on the plains but local, breeds regularly at Famagusta and Morphou". It was not mentioned by Riddell (1927); only one was recorded by Ferrier (1936) and only a few in herbage near wetlands by McNeile (1948–1955). Wilson (1954) mentions it only in reeds and rushes bordering marshes and in 1954 Bannerman & Bannerman (1958) saw it only near wetlands. These marshes and wetlands were adjacent to coasts but by 1958–1959 the species was common inland on the plains wherever long/lush vegetation or standing corn were present (COS 1959, 1960, Ashton-Johnson 1961). Since then it has increased and spread and is now common in cereals or herbage on low ground and the lower hills (usually up to c400 m asl) throughout the island, even occurring in patches of weedy waste ground in towns. It disperses widely after breeding; 'apparent immigration' (Horner & Hubbard 1982) probably refers to returning local breeders, suggesting that some very limited partial migration occurs in this otherwise resident species. *Population:* 40 000–120 000 pairs in 2006–2012 and increasing.

In Greece this species shows strong annual fluctuations in numbers and range depending on winter severity (Handrianos & Akriotis 1997); this is apparently also the case in Turkey (Kirwan *et al* 2008). For Cyprus the population data is not sufficiently detailed to make such a link for annual fluctuations, but the species' long-term increase in numbers and distribution has coincided with increasing winter mean temperatures, especially higher minimum temperatures, and after 1970 with many fewer winters of high precipitation. The species' grass/herbage habitat, with little shelter, and its small body mass seem likely to make it especially vulnerable to a combination of cold and prolonged heavy rainfall. In this respect it may be significant that the earlier records were almost entirely from coastal areas, where winters are milder. The species rapidly colonised Crete since 1967 (Handrianos & Akriotis 1997) and Malta since 1973 (Sultana *et al* 2011) and has recently increased in Lebanon (Ramadan-Jaradi *et al* 2008); it may be an earlier colonist on Cyprus.

Cetti's Warbler *Cettia cetti*

Non-breeding status: there are no records of immigration (but see below). *Breeding:* common and widespread resident, formerly scarce and local. Six earlier records, 1875–1911 (Lilford 1889, Natural History Museum, Tring, Bucknill 1911). Lilford (*op cit*) heard it only once during his visit and it was not encountered by Bucknill (1909) or Jourdain (1929b). Neither was it mentioned by Riddell (1927), Ferrier (1936) and McNeile (1948–1955) and it was only recorded once by Bannerman & Bannerman (1958). In 1957–1958 it was present on the north side of Akrotiri salt lake (Phassouri) and at cape Andreas, and was also found in many of the deep river valleys of the southern Troodos foothills, moving to lower ground in winter (COS 1958, Ashton-Johnson 1961, Bourne *et al* 1964). In May–June 1979, 62 singing males were counted in the southwest mainly below 600 m asl (Flint 1981); by contrast, none was detected there during 120 point counts in May 1986 (Massa & Catalisano 1987). By 1992 it had extended its distribution to *eg* Kyrenia and Nicosia, was more numerous within its existing range in the southwest and also occurred in drier and atypical habitats. During 1997–2003 it was found at 34 out of 40 census sites in the southwest and its population was increasing at 12% a year (Pomeroy 2004). It now occurs throughout most of the island, including the two mountain ranges (to 1400 m asl on Troodos), the Karpas peninsula, the east and the southeast, some also in urban areas and it has continued to spread to drier habitats. None was detected in spring 1968 in the southeast in a major study of immigration (Horner & Hubbard 1982) nor in 1969–1972 during extensive ringing of spring/autumn migrants at Akrotiri on the south coast (*pers obs*), suggesting that the breeding population is resident with no detectable partial migration. *Population:* 25 000–90 000 pairs in 2013 and increasing. There are no population estimates from before the species began to increase, but I would estimate the population in 1970 to have been 100–300 pairs with the majority at cape Andreas (*pers obs*).

The Cetti's Warbler population is vulnerable to severe winter weather (Hagemeijer & Blair 1997) so in the past its numbers and distribution on Cyprus may have been limited by the formerly colder and wetter winters which may also have been responsible for the apparent fluctuations in its numbers and distribution. In this respect it may be significant that during 1970–1972, although some were in the hills, it was most numerous year round on or near peninsulas at Akamas, Akrotiri and cape Andreas which because of maritime influences have warmer winters than inland (Department of Meteorology 2018a). In southern Turkey breeding Cetti's Warblers in the central Taurus mountains move in autumn/winter to coastal areas of the west and south and across the southern Aegean (Clement 2018a); this population breeds directly north of and close to Cyprus so immigration into the island seems likely. Given the current knowledge of the earlier climate, it seems improbable that the formerly isolated population at cape Andreas was a remnant of a once island-wide population but instead that it represented a recent and separate colonisation event, probably of immigrants from Turkey. This population was also unusual in occupying an atypically dry habitat of tall, dense juniper scrub.

Spanish Sparrow *Passer hispaniolensis*

Non-breeding status: common passage migrant and winter visitor. *Breeding:* locally common resident, formerly scarce. In April–May 1875, Lilford (1889) “did not meet with it in any of the likely looking places that I visited”; these included areas northeast of Famagusta, where it was later found breeding. Bucknill (1910, 1913) considered it ‘probably resident’. Jourdain (1929b, 1930) listed it as a not uncommon resident northeast of Famagusta and on the Karpas. McNeile (1948–1955), during extensive studies of the breeding birds did not encounter it anywhere, including northeast of Famagusta and both mountain ranges. In

1957–1959 many colonies were found on the Karpas, with others at Salamis/Famagusta, but it was only found further west in winter (COS 1958–60, Ashton-Johnson 1961). By 1967 a large colony was on the plain at Kouklia and by 1970 it was breeding at Kormakiti in the northwest, in the higher Troodos and the Paphos forest. It continued to increase and spread in the following decades and during 1997–2003 was increasing at 31%/year in the southwest (Pomeroy 2004). *Population*: 150 000–400 000 pairs in 2013 (Hellicar 2016a).

There are not sufficient earlier records to determine whether this species was a new colonist, after 1875, or whether it was formerly present but very scarce; in either case it has undergone a remarkable increase. Possibly reasons for this are; firstly, the extensive tree planting on low ground and reforestation have provided many new sites for colonies, which typically occupy large mature trees. Secondly, the numbers of immigrants appear to have greatly increased. Migrant flocks were not encountered by Lilford (1889) and migration was not mentioned by other early authors (eg Guillemard 1888, 1889, Bucknill 1910, 1911, Jourdain 1929b, 1930, Ferrier 1936); but in the late 1950s and early 1960s migrant flocks numbered tens or hundreds of birds and by the late 1960s flocks of 1000s occurred. This increase, which may have been due to the spread of the species in Bulgaria, Romania and Moldavia in the 1950s–1960s (Cramp & Perrins 1994), may have accelerated the species' spread on Cyprus by providing more potential colonists.

European Serin *Serinus serinus*

This species has been described as a colonist to Cyprus (Hagemeijer & Blair 1997) by 1875 (Mayr 1926 modified by Newton 1978) or by 1800 (Olsson 1969 modified by Burton 1995). In either case, long before the period covered by this review, though the historical literature for the island does not mention or imply any colonisation. The species has been present in the breeding season in its formerly main breeding area, Troodos, since at least 1888 (eg Lilford 1889, von Madarász 1904). It was 'in some abundance' there in late May–early June 1909 (Bucknill 1909/10) so has apparently been a common breeding species for a long time, at least on Troodos. Burton (1995) believed that its eastward spread to the east Mediterranean region was due to an earlier amelioration of the climate. Since the 1980s it has also spread southwards to Lebanon, Syria, Jordan, Israel and perhaps the Nile delta (eg Murdoch & Betton 2008, Clement 2018b); in Israel its colonisation is believed to be due to habitat change (Shirihai 1996). It also greatly expanded its European range northwards during the last century; contemporaneously with which it expanded its habitat range (eg Burton 1995). A similar pattern is shown on Cyprus: since the 1960s it has had a limited and patchy spread from its open pine forest/woodland habitats within the Troodos massif, mainly to adjacent low ground and initially to cypress windbreaks bordering citrus groves but later also to plantations, parks, villages and gardens. Currently (spring 2018) numbers of singing males within the western Troodos massif are greatly reduced, with those present exclusively near water; this reduction may be due to the greatly reduced rainfall there, with some usually flowing seasonal water courses dry (Alison McArthur pers comm). Two recent severe drought years 2013/2014 and 2015/2016 followed by two years of near drought (Department of Meteorology 2018b) may be significant in this.

DISCUSSION

Mediterranean islands have had at least 10 000 years of human occupation (Blondel & Aronson 1999) and habitat modification (Naveh & Vernet 1991); nevertheless, they conform quite closely to the species/area rule (MacArthur & Wilson 1967): an increase in island area of ≈ 13 times equating to a doubling of the regularly breeding land bird species total (Flint & Stewart 1983, 1992, Iapichino & Massa 1989). Species/area graphs show theoretical

equilibrium totals for Cyprus of c71 species (measured from Iapichino & Massa 1989) and c81 species (measured from Flint & Stewart 1992); the actual total in 1992 of 74 species (including Hobby and Woodchat Shrike) fell within this range. The increase in the total since then is probably due to an increase in the equilibrium total following the recent environmental changes, rather than to variance around the previous mean. Flint & Stewart (1983, 1992) and Iapichino & Massa (1989) mentioned that for its area Cyprus then had an impoverished avifauna in comparison with west/central Mediterranean islands; they suggested that this may have been due to its eastern location and consequent semi-arid climate and poor habitat diversity (if this was so then the recent colonisations following the construction of reservoirs have gone some way to redress this). The high level of avian endemism on Cyprus (Stattersfield *et al* 1998) with now three endemic species (Gill & Donsker 2018) and a potential fourth (Pentzold *et al* 2013, 2016, Tritsch *et al* 2018, OSME 2018), plus two endemic subspecies, suggests that any anthropogenic changes in previous millennia may not have resulted in major changes to the species composition of natural habitats, at least regarding smaller species.

Of the six extinctions, those of the three birds of prey and the sandgrouse appear to be anthropogenic. Those of the dipper and sparrow perhaps mainly to prolonged drought, though anthropogenic factors may also be important.

Of the 15 apparent colonists (Tables 2, 3) seven are water/wading birds of which six species often bred in the past when water levels were suitable. Their now regular breeding appears to be mainly due to the creation of many new artificial water bodies, though the cessation of spring hunting is probably also important. The colonisation by the Cattle Egret appears not to be related to the presence of artificial water bodies, though is probably also anthropogenic. Of these seven waterbirds, six are resident or mainly so and one a migrant.

The remaining eight species include three, Eurasian Hobby, Long-eared Owl and Woodchat Shrike, which appear to be previously overlooked long-term breeders. The hobby and shrike are trans-Saharan migrants, the owl is resident. The other five species (Northern Goshawk, Long-legged Buzzard, Common Blackbird, Sardinian Warbler and European Greenfinch) appear to be genuine new colonists. All are believed to be resident or mainly so and before colonising were migrants/winter visitors from further north. The reasons for their colonisations are less obvious than with the water/wading birds, but the long-term increases in the quality and area of forest and scrub and in the number of mature trees, and the now more benign winters, are probably the main reasons. For the two raptors, reduced disturbance and persecution are probably also important.

The eight species which may be colonising include six mainly migratory water/wading birds. The reasons for their breeding are probably generally similar to those for the water/wading bird colonists; though for the wading birds the presence of the Cattle Egret colony also appears to be important. The breeding by the resident Laughing Dove appears to be due to escapes/releases and to immigration from the expanding Turkish population; the reasons for the breeding by the also resident Grey Wagtail are less obvious. Of these eight species, probably only Laughing Dove would seem to have the potential to establish a large, secure and permanently viable population on the island.

The four pre-existing breeding species which have undergone large, long-term increases in numbers and distribution, Eurasian Collared Dove, Zitting Cisticola, Cetti's Warbler and Spanish Sparrow, are all resident or apparently so. The increase by the dove appears to be due to immigration from the expanding Turkish population, that by the cisticola and warbler probably mainly to climate change, and that by the sparrow probably to immigration and habitat change.

Two things stand out from this: firstly that a high proportion (10 of 12) of the genuine new colonists and all four of the species which have undergone very large increases, are

resident or mainly so (including all nine of those species with minimum populations ≥ 100 pairs); and secondly that the colonisations and increases appear to be largely anthropogenic. The latter will be especially so if the warming and drying of the island's climate since the mid 20th century is anthropogenic, as it is extremely likely to be (Lelieveld *et al* 2012, IPCC 2014). Elsewhere in Europe recent population changes also appear to be favouring resident bird species rather than migrants (*eg* Sanderson *et al* 2006, Heldbjerg & Fox 2008).

If the rapid increases shown by Zitting Cisticola, Cetti's and Sardinian Warblers, Spanish Sparrow and European Greenfinch are typical for the island, it would imply a regular and rapid turnover of species (if the total is to remain in approximate equilibrium). However, in the earlier systematic lists and avifaunas (Lilford 1889, Bucknill 1909/10, 1913, Jourdain 1929a, 1930, Bannerman & Bannerman 1958, Bourne *et al* 1964) there is no recorded similar rapid increase and spread by any songbird prior to these recent increases, which have coincided with the recent environmental changes.

Prior to the colonisations in Table 2 there were 45 resident and 28 migratory breeding species (calculated from Stewart & Christensen 1971, Flint & Stewart 1983, 1992 and Table 3); if this ratio were maintained then the 12 new colonists might be expected to contain seven or eight resident species, rather than ten. The changing climate and the high rate of residency among the colonists/increasing species are probably interconnected. The residents are already known to breed earlier than migrants *eg* the first recorded clutches for the resident Crested Lark *Galerida cristata* and Calandra Lark *Melanocorypha calandra* are mid March and early April respectively, compared with the migratory Greater Short-toed Lark's mid April; for the mainly resident Spectacled Warbler *Sylvia conspicillata* early March (but nestlings also then) compared with mid April and early May respectively for the migratory Reed Warbler *Acrocephalus scirpaceus* and Eastern Olivaceous Warbler *Iduna pallida*, and for the resident Corn Bunting *Emberiza calandra* late March compared with mid April and early May respectively for the migratory Cretzschmar's Bunting *Emberiza caesia* and Black-headed Bunting *Emberiza melanocephala* (Flint & Stewart 1992).

In addition to breeding earlier than migrants and benefiting from the more benign winters, residents (being already present on the island) might also be expected to more easily advance their breeding seasons to keep in synchrony with the warmer springs and their presumed earlier arthropod food supply, compared with migrants. The latter by contrast, unless they advanced their spring migration timing, would find their breeding season increasingly out of synchrony with the earlier springs on the island—the phenology mismatch hypothesis (Jones & Cresswell 2010). Birds breeding in highly seasonal habitats are expected to be exceptionally vulnerable to phenology mismatch (Pearce-Higgins & Green 2014). On Cyprus during the spring breeding season, habitats are highly seasonal in the rapidity with which temperature and aridity increase, in the rapidity with which the green herbage of winter and early spring vanishes in the rapidly increasing heat of May, and in the marked increase and decline of arthropod abundance and biomass (Jones 2006). Peak biomass varies in magnitude and date (Jones 2006), apparently dependent on climatic conditions (Flint & McArthur 2014).

Breeding phenology is best monitored by mean first egg laying date (*eg* Weidinger & Král 2007) but no such long-term data exists for Cyprus breeders. Mean first arrival dates for migrant breeders can be calculated; as far as I am aware, the phenology of only one species, the Cyprus Wheatear *Oenanthe cypriaca* (conspicuous and easily detected), has been examined for such an advance in its arrival in spring. During 1970–2009 the first migrants occurred late February–mid March (excluding a few January–mid February possible overwintering birds), with a constant mean first arrival date/decade of 5 March despite increasing observer coverage (Flint 2011). Its similar mean first arrival date 2010–2018 is 6 March. There has been no obvious change in the longer term either: Bucknill

(1909/10) giving 23 February as his earliest record and Bourne *et al* (1964) giving first arrivals as early March. Encounter rates for this species during the breeding season in five areas of natural habitat in the west of the island declined by >50% 2011–2018 with a perceived decline in villages also (Alison McArthur pers comm) and there has been a non-significant c38% decline in farmland and forest 2006–2015 (Hellicar 2016a) although there is no evidence of a causal link.

In addition to the natural hazards of migration (Newton 2008), birds migrating from Cyprus into northeast and east Africa face extensive trapping and hunting along the route (*eg* Olivier 2000, BirdLife International 2006, Contesso 2009, Weiz 2013, Elhalawani 2016, MBCC 2017). On their breeding grounds migrant species might also be faced with increased competition from the greatly increased numbers of resident individuals, and with increased predation from reptiles, which can be expected to be more active later in the breeding season as temperatures rise. An example of apparently increased competition is shown by the apparent negative impact of the colonist and resident Sardinian Warbler on the abundance and distribution of the partly migratory Cyprus Warbler (Flint & McArthur 2014, Pomeroy *et al* 2016); the former also starts breeding 1–3 weeks earlier, has more second broods and higher productivity (Jones 2006).

Recent short-term changes in abundance are outside the scope of this review, but it is noteworthy that they also show residents increasing more than migrants. Of 40 common breeding species monitored 2006–2015, the seven showing strong increases (>5%/year) were all resident as were six of the eight showing moderate increases (\leq 5%/year); the three species showing declines were all migrants (Hellicar 2016a). In that survey the 13 resident species which have increased include ten small passerines (Eurasian Wren *Troglodytes troglodytes*–House Sparrow *Passer domesticus* in size) which might be expected to benefit most from the less cold and less wet winters. Also, the four species in the survey which are confined to the Troodos massif, or mainly so—Eurasian Wren, Cyprus Coal Tit *Periparus cypriotes*, Eurasian Jay *Garrulus glandarius* and European Serin—all show increases; in addition to milder winters, this higher ground has experienced the greatest reduction in winter rainfall.

Climate change may be the main factor in changing the wider distribution of species (*eg* Burton 1995, Huntley *et al* 2007). The link may be difficult to prove in any particular case, since other factors may also be involved (Pearce-Higgins & Green 2014) as they clearly are on Cyprus. Even so, this review suggests that climate change appears to be a causal factor in at least eight of the extinctions, colonisations and increases described here.

Species may be absent as regular breeders from an island because they never reach it, which was clearly not the case in the past with the species discussed here (except for Laughing Dove), or because conditions on the island (*eg* competition from species already present, unsuitable habitat/climate) prevent them from establishing viable populations, even though they may repeatedly attempt to colonise (MacArthur & Wilson 1967). The latter was clearly so with the waterbirds which have now colonised, and may have been so with the European Greenfinch, Sardinian Warbler and Common Blackbird, which were common winter visitors and passage migrants for many decades before they colonised; the first two at least may have occasionally bred or attempted to breed before they colonised. It may be significant that all three are generalists with wide habitat ranges; this may have enabled them to more easily establish within the insular environment, compared with species with more specialised habitat requirements. European Greenfinch and Sardinian Warbler also appear to have colonised at several locations on the island, suggesting that their colonisations were not random, chance events but were responses to some island-wide or regional factor/s. Also, six of the colonists (Cattle Egret, Mallard, Long-legged Buzzard, Spur-winged Lapwing, Common Blackbird and European Greenfinch) and four of the

other species mentioned here (Laughing Dove, Eurasian Collared Dove, Zitting Cisticola, and European Serin) have increased in nearby countries. This is a character of successful island colonists (Newton 2003), suggesting that some of the causal factors on Cyprus for these colonisations and increases may be affecting the wider east Mediterranean region.

It is notable that three of the resident species which have greatly increased their numbers and distribution on the island, Eurasian Collared Dove, Zitting Cisticola and Cetti's Warbler, have also widened their habitat ranges. This appears to have also happened with the also resident European Serin. The most plausible explanation is sequential habitat occupation (Newton 1998), *ie* as populations increase, optimal habitats are occupied first and excess individuals are forced to colonise sub-optimal habitats. In the case of the three species with small body mass—Zitting Cisticola, Cetti's Warbler and European Serin—the probable main cause of their population increases is the ameliorating winters.

The Spectacled Warbler and the Cyprus Warbler are also of small body mass, but unlike Cetti's Warbler and Zitting Cisticola were both widespread and fairly common or common breeding birds before the recent climate changes on the island (*eg* Guillemard 1888, 1889, Lilford 1889, Stewart & Christensen 1971). Both are also partial migrants, the latter more than the former (Stewart & Christensen 1971, Shirihai *et al* 2001, Richardson 2017); this may have enabled them, unlike the two residents, to maintain large populations when winters were colder and wetter. Environmental influences are important in the development of partial migration (Chapman *et al* 2011) and partial migrants can be especially fast in becoming less migratory in response to a warming climate (Lehikoinen *et al* 2006), so both species may have been more migratory in the past, before the climate amelioration.

Looking to the future, the trend of increasing temperature and decreasing rainfall on the island is predicted to continue, with, by 2021–2050 an increase in mean temperature in winter of 1.4°C and in summer of 1.9°C, and a decrease in rainfall of 6–18%, and by 2071–2100, an increase in mean temperature in winter of 3.6°C and in summer of 5°C, and a decrease in rainfall of 20–35%, compared with the 1961–1990 average. In 2021–2050 there are predicted to be 25 more heatwave days per year and in 2071–2100 60 more per year (Giannakopoulos *et al* 2010). Increases in temperature and decreases in rainfall are also predicted in Turkey and the Levant (Lelieveld *et al* 2012). These higher winter temperatures may lead to even further advantage of resident over migrant breeders, and when combined with the hotter breeding seasons and the further reduction in rainfall, it seems inevitable that further rapid and extensive changes in the status of the island's breeding birds will result. To monitor such changes, island-wide censusing/atlasing would be valuable.

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Breeding Brown Boobies *Sula leucogaster* on Egyptian islands of the Red sea

MOHAMED HABIB

In the Red sea of Egypt the Brown Booby *Sula leucogaster* is a scarce breeding resident on the islands. It is observed with some regularity in the gulf of Aqaba but rarely in the gulf of Suez. The subspecies in Egypt is *Sula leucogaster plotus* (Goodman & Meininger 1989, Cramp & Simmons 1977). Previously (Frazier *et al* 1984, Jennings *et al* 1985) the Brown Booby was found breeding at Ashrafi island with 7 breeding pairs in spring 1983, Geisum island had 46 breeding pairs in spring 1983 and there were 18 chicks there autumn 1984, Umm El Heimat had 3 pairs in spring 1983 and one chick autumn 1984.

METHODOLOGY

The Red sea governorate has the longest sea coast compared with any other Egyptian governorate, extending from El Zafrana in the north to Halib in the south, a distance of 1050 km. Along this coastline, there are several archipelagos. My survey started early June 2012 and continued in 2012, 2013 and 2014. Most islands were surveyed. All islands were reached by boat (mainly safari boats or boats used by the Red sea governorate). After landing, I used direct counting methods, mostly from higher vantage points to prevent any disturbance. Counting units were apparently occupied nests, defined as the summed numbers of occupied and unoccupied nests that appear to have been used during the current breeding season (Bibby *et al* 2007). The temperature varied from 37°C at the beginning of the season in late May to more than 47°C in late July and August. Visits to each colony were limited to less than 20 min to reduce nest disturbance (Bibby *et al* 2007).

RESULTS (Plates 1–17)

Before 1999 Brown boobies were regular breeders at Geisum and Umm El Heimat islands (Grieve & Millington 1999). During the survey, which covered most of the Red sea islands, we found that the Brown Booby bred mainly on two islands, Ashrafi in the north and Zabargad in the south. The distance between the two populations was over 400 km (Figure 1). Counts are presented in Table 1 and Figure 2.

Breeding

The breeding season at Zabargad started one month earlier than at Ashrafi. At Zabargad breeding started in the first week of February. The Brown Boobies started laying eggs in the second to third week of February with fledging end July–end August. Replacement clutches were laid after loss of eggs or young in June or July (probably at Ashrafi island after fishermen had hunted chicks before fledging). The nests were made by both sexes on a cliff at Zabargad island and on fossilized coral ground at Ashrafi. Nesting material consisted of old drift wood, twigs and dry algae. The clutch was 1–2 eggs, incubation between 40–44 days and hatching was asynchronous. Young were altricial and nidicolous; hatched and young chicks keep warm by sleeping on the top of parents' foot webbing. Parents cover back of the chick using parental belly feathers. After hatching both parents tend, care and protect the chicks from predators. When chicks reach 5 weeks old, they start to be able to protect themselves from predators, mainly Sooty Gulls *Larus hemprichii*. They utter defensive calls then regurgitate semi-digested fish when threatened which directs



Figure 1. Location of the main breeding islands of Brown Boobies of the Egyptian Red sea: 1 Ashrafi island, 2 Zabargad island, 3 Abu Mingar island and 4 Sayal island .

attention to the fish rather than the chick. Fledging depends on the food supply which lasts 4–5 months. The fledgling keeps with the female during foraging till they are able to survive alone.

Foraging

The population of Brown Boobies of Zabargad often foraged out to the sea to feeding grounds 20 km west of Zabargad island around Shawareet and Sayal islands. The population of Ashrafi forages east of the Ashrafi islands in pelagic water searching for schools of fish and reaches 30 km south around Abu Mingar island and Big Gifton island. We saw groups of 10 Brown Boobies one hour before sunset in pelagic water plunging from c10 m in which wings were angled then fully extended backwards chasing schools of fish. After foraging in the breeding season parents travel back to the breeding islands to feed young and change responsibility of tending the chicks, while after fledging they disperse with females around the islands and end back at the natal island. They roost at coral islands, rocks or buoys.

Table 1. Results of the survey count.

Brown Booby Breeding nests							
	nest with two eggs	nest with 1 egg	inactive nest	Adult	First Summer	Fledgling	Chick
Zabargad island 10 April 2014	14	4	22	16		2	
Zabargad island 14 August 2014					1	4	1
Ashrafi island 30 June 2012		2	8	23			2
Ashrafi island 19 June 2013				35		1	14
Ashrafi island 12 June 2014		1		17		3	14
Sayal island 28 July 2013				1		1	
Abu Mingar island July 2014				1		1	

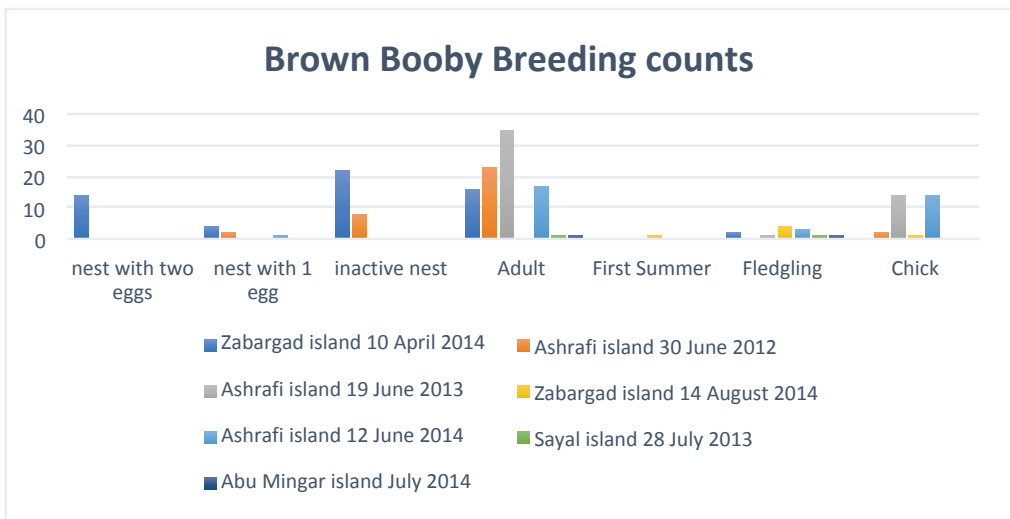


Figure 2. Diagram of the results.

DISCUSSION

Brown Boobies do not breed any more at Geisum and Umm El Heimat islands due to disturbance by tourists and kite surfing safari boats. Ashrafi and Zabargad islands are far from tourism activity.

There is human disturbance by fishermen landing on Geisum and Ashrafi islands. They collect chicks before fledging as a food source during fishing excursions (pers comm local fishermen). There is a wide range of oil pollution from different sources. Oil rigs and bilge water from tourism boats are the main source of oil pollution at the surveyed areas. Oil pollution can have devastating effects on Brown Boobies and other sea birds breeding at those islands because their feeding behaviour makes Brown Boobies susceptible to oil pollution which can eliminate the insulation of feathers and can result in death of chicks or parents from ingesting the oil as the birds try to remove it during preening. The main natural predator is the Sooty Gull *Larus hemprichii* which steals unattended eggs and chicks. Preliminary plans to protect breeding and nursery ground areas and recommendations were delivered to the Red sea governorate for future implementation.



Plate 1 (left). Brown Booby *Sula leucogaster* female brooding egg, Ashrafi island, Red sea. © Mohamed Habib

Plate 2 (right). Brown Booby *Sula leucogaster* nest with one egg, Ashrafi island, Red sea. © Mohamed Habib



Plate 3 (left). Brown Booby *Sula leucogaster* male guarding chick, Zabargad island, Red sea. © Mohamed Habib

Plate 4 (right). Brown Booby *Sula leucogaster*: a few days-old chick, Zabargad island, Red sea. © Mohamed Habib



Plate 5 (left). Brown Booby *Sula leucogaster* male guarding chick, Ashrafi island, Red sea. © Mohamed Habib

Plate 6 (right). A Brown Booby *Sula leucogaster* chick, Ashrafi island, Red sea. © Mohamed Habib



Plate 7 (left). An older Brown Booby *Sula leucogaster* chick than the one in Plate 6, Ashrafi island, Red sea. © Mohamed Habib



Plate 8 (right). Five-week-old Brown Booby *Sula leucogaster* chick, Ashrafi island, Red sea. © Mohamed Habib



Plate 9 (left). Five-week-old Brown Booby *Sula leucogaster* chick, Ashrafi island, Red sea. © Mohamed Habib



Plate 10 (right). A Brown Booby *Sula leucogaster* chick, Zabargad island, Red sea. © Mohamed Habib



Plate 11 (left). Brown Booby *Sula leucogaster* a few days before fledging, Zabargad island, Red sea. © Mohamed Habib



Plate 12 (right). Fledglings forage together with adult females 20–50 km from breeding island, Sayal island, Red sea. © Mohamed Habib



Plate 13. Fledgling Brown Boobies *Sula leucogaster* forage together with females 20–50 km from breeding island, Sayal island, Red sea. © Mohamed Habib



Plate 14. Adult male Brown Booby *Sula leucogaster*, Ashrafi island, Red sea. © Mohamed Habib



Plate 15. Adult female Brown Booby *Sula leucogaster*, Ashrafi island, Red sea. © Mohamed Habib

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Plate 16 (left). Sooty Gull *Larus hemprichii*, main predator of Brown Boobies *Sula leucogaster*, Ashrafi island, Red sea. © Mohamed Habib



Plate 17 (right). Semi-digested fish are regurgitated when Brown Boobies *Sula leucogaster* are threatened, Ashrafi island, Red sea. © Mohamed Habib

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First record of White-rumped Sandpiper *Calidris fuscicollis* for Azerbaijan

CHRISTOPH HIMMEL

On 17 August 2017 whilst conducting a wader census in southern Azerbaijan, I found an interesting looking *Calidris* sandpiper, feeding in a small wetland near lake Machmudchala (39° 28' 00.1" N, 48° 44' 38.4" E). The bird was observed and photographed for c15 minutes from a distance of c30 m, but while approaching the bird to get better views and photos it flushed and left the area.

It was definitely smaller than the Marsh Sandpiper *Tringa stagnatilis* present (Plate 1). No other *Calidris* were present for comparison. Due to the moult into the mostly grey non-breeding plumage with few remnants of breeding plumage (2–3 right tertials, one right greater covert, 2–3 right scapulars) in August, indicates an adult bird (von Blotzheim & Bauer 1993, Vinicombe *et al* 2014). Advanced moult into winter plumage hints at White-rumped Sandpiper, which starts its moult into winter plumage in July (von Blotzheim & Bauer 1993, Duivendijk 2011, Vinicombe *et al* 2014). The long-bodied structure with wings extending beyond the tail (Plate 2) is a crucial feature for White-rumped- or Baird's Sandpipers *Calidris bairdii* (Chandler 2013, Peacock 2016).

Whilst tilting forward and probing the mud it showed its crossed primaries extending well beyond the tail (Plate 3). Forward teetered foraging is also a feature of White-rumped Sandpiper, whereas Baird's Sandpipers mostly remain horizontal (Peacock 2016). A striking feature was the long distinct supercilium, a characteristic of White-rumped Sandpiper (Chandler 2013, Peacock 2016). The bill was slightly decurved with a broad base, which indicates White-rumped Sandpiper (Chandler 2013, Peacock 2016). Due to the poor quality of the photos no pale base of the lower mandible is visible. The flanks showed no leftovers of the flank streaking of the breeding plumage of White-rumped Sandpiper, but reduced flank streaking can occur in some birds especially in non-breeding plumage and does not exclude White-rumped Sandpiper (Hayman 1987, Alström *et al* 1989, Chandler 2013, Peacock 2016). The breast was greyish with a white background and the legs appeared dark.

I also considered other *Calidris* species. Curlew Sandpiper *Calidris ferruginea* was ruled out since it has longer legs and bill and the body size is just a few centimetres smaller than Marsh Sandpiper and not as small as White-rumped Sandpiper (Chandler 2013, Peacock 2016). Baird's Sandpiper as the bird with the highest risk of confusion is excluded by its buff supercilium, straighter and thinner bill, more angled forehead and different feeding behaviour (Chandler 2013, Peacock 2016).

With its breeding grounds in the Canadian Arctic and wintering in South



Plate 1. White-rumped Sandpiper *Calidris fuscicollis* with Marsh Sandpiper *Tringa stagnatilis* in the background, lake Machmudchala, Azerbaijan, 17 August 2017.



Plate 2 (left). White-rumped Sandpiper *Calidris fuscicollis* foraging in a small wetland near lake Machmudchala, Azerbaijan, 17 August 2017.

Plate 3 (right). White-rumped Sandpiper showing its crossed primaries while tilting forward (typical foraging behaviour) and added cropped image, lake Machmudchala, Azerbaijan, 17 August 2017.

America (Paraguay, northern Argentina–Tierra del Fuego (von Blotzheim & Bauer 1993, Peacock 2016) White-rumped Sandpiper is a long-distant migrant undertaking 60 hour non-stop flights covering distances up to 4000 km (Cramp & Simmons 1983, von Blotzheim & Bauer 1993). White-rumped Sandpiper is an annual vagrant to the west European coast and is accidental to South Africa, Namibia, Australia and New Zealand (Pizzey & Knight 1997, Peacock 2016).

This record is the first for Azerbaijan. It is not in Patrikeev (2004) and has not been observed since (M Heiss pers comm). It appears to be the fourth record in the OSME region with previous records in Turkey (Browne 1997), Israel (Perlman & Meyrav 2009) and the United Arab Emirates (Campbell & O'Mahony 2013). It is the second during autumn migration (Campbell & O'Mahony 2013)

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Irruption of Bohemian Waxwings *Bombycilla garrulus* and Eurasian Bullfinches *Pyrrhula pyrrhula* in Iran in the winter of 2016/2017

ABOLGHASEM KHALEGHIZADEH

Irruption is an avian phenomenon where many individuals including juveniles may invade new ranges in harsh winters. The Bohemian Waxwing *Bombycilla garrulus* and Eurasian Bullfinch *Pyrrhula pyrrhula* irrupt further south beyond their normal range in cold winters (Elkins 2005, Newton 2006). In the Middle East, the Bohemian Waxwing is considered as a rare and irregular winter visitor to Iran, Turkey and vagrant to Cyprus and Israel and the Eurasian Bullfinch winters to northern Iran and Turkey (Porter & Aspinall 2010). The Bohemian Waxwing and Eurasian Bullfinch were also categorized as rare bird species by the Iran Bird Records Committee. There have been few records of these two species in the past century in Iran. Here I report an unusual increase in the number of records of Bohemian Waxwing and Eurasian Bullfinch during the winter of 2016/2017.

The Bohemian Waxwing has been recorded in many parts of Iran but mostly in the north. Previously it had been recorded from Mashhad on 15 November 1898 (Roselaar & Aliabadian 2009), Golestan national park in 1970 and Chabahar in 1971 (Scott 2008). In the 2000s, it was recorded in Bazangan, Meshgin-Shahr, Mashhad and Gorgan (Khaleghizadeh *et al* 2010). The Eurasian Bullfinch has been a rare bird visiting only northern Iran. It was recorded from Mashhad, Quchan, Goudan, Ramsar, Alamdeh, Khorram-Abad and Pish-

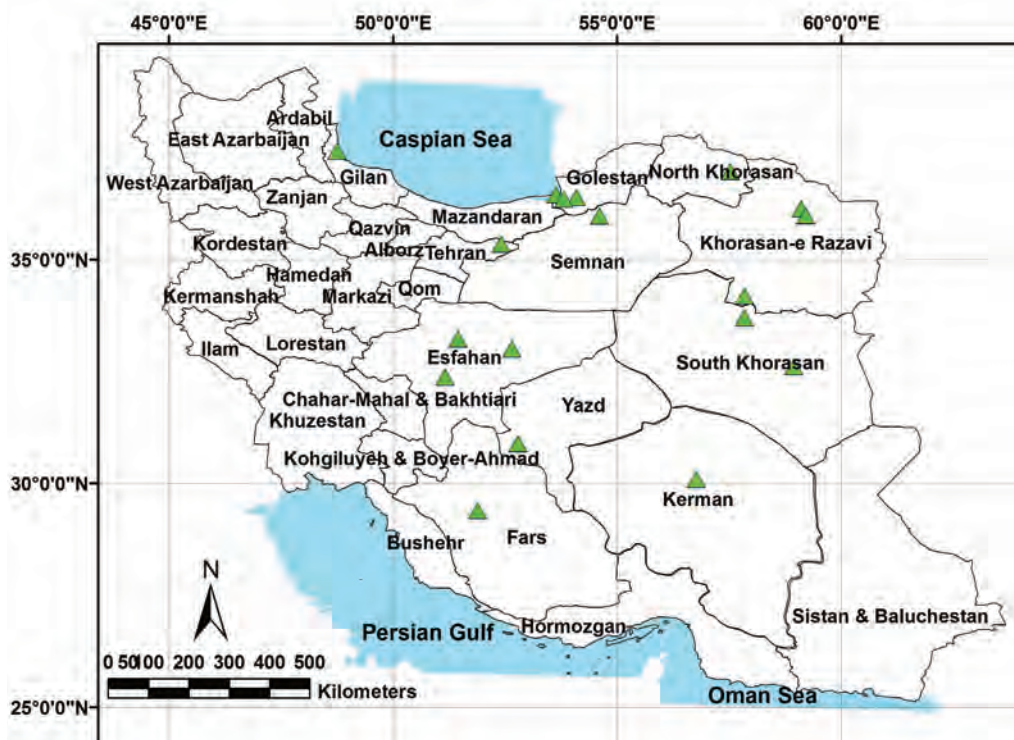


Figure 1. Map of Iran showing location of records of Bohemian Waxwing in Iran during the winter of 2016/2017.

Table 1. Records of Bohemian Waxwing in chronological order in Iran from November 2016–May 2017.

	Place	Province	Date	Observer(s)
One dead	Talesh	Gilan	23 November 2016	Fardin Naziri
Two	Ashuradeh, Miankaleh	Golestan	9 December 2016	Farid Roshanaei
One	Natanz	Esfahan	23 December 2016	Mohammad Ali Ebrahimi
80	Bajestan	Khorasan-e Razavi	December 2016	-
One	Abbas-Abad Wildlife Refuge, Naein	Esfahan	December 2016	Javad Najafi & Farnaz Heidari
4	Golmakan	Khorasan-e Razavi	December 2016	Mehran Mirsayyar
40	Zafar park, Birjand	South Khorasan	31 December 2016– 14 January 2017	Ehsan Dorostkar
50	Ferdows	South Khorasan	6 January 2017	Hamed Ostovari
40	Shast-Kalateh forest, Gorgan	Golestan	14 January 2017	Hamid-Reza Rezaei
c600	Jahan-Nama forest, Gorgan	Golestan	13 January 2017	Seyed Mohammad Aghili
9	Shiraz	Fars	13 January 2017	Amir Farahnasab, Abbas Nouroozi, Hamid Ahmadi, Alireza Emtiaz, Meysam Hazeghi, Saghar Khakdan, Farid Mahboobi & Mohammad-Kazem Haghghat
8	Ziarat, Gorgan	Golestan	20 January 2017	Behrad Galeshi
64	Shirvan	North Khorasan	29 January 2017	Babak Ghavidel-Namanlu
At least 300	Mashhad	Khorasan-e Razavi	December 2016– February 2017	Ehsan Ardakanian, Ali Khani, Ali Mahdavi, Morteza Razavi-Moghaddam, Morteza Keshavarz, Hamideh Daliri, Ali Sangchooli, Samaneh Mokhtari, Ehsan Talebi & Yashar Sadafzadeh
5	Abar-Kuh	Yazd	8 February 2017	Mohammad-Hossein Akrami Abarghooei
20	Kordkuy	Golestan	10 February 2017	Seyed Mohammad Aghili
At least 20	Esfahan city	Esfahan	21 February 2017	Mohammad Moeini, Iman Ebrahimi, Fatemeh Mousavi, Zahra Ebrahimi, Mahsa Hashemi, Mohammad-Ali Ebrahimi, Sina Poureshagh, Fatemeh Jangjou & Elham Nasr
40 and 12	Kerman	Kerman	24–31 March 2017	Yaser Teimouri, Seyed Reza Alavi, Mohsen Movahedi Parizi, Hamed Teimouri, Saeed Galedari & Mohammad-Ebrahim Sehhatisabet
At least 60	Zarrin-Dasht road, Firuzkuh	Tehran	17 April 2017	Ali Sangchooli & Samaneh Mokhtari
At least 20	Shahrud	Semnan	28 April 2017	Seyed Ali Mortazavi
10–12	Pardis city	Tehran	1 May 2017	Taraneh Amini, Bijan Doustdar & Parviz Bakhtiari
c300	Jahan-Nama	Golestan	11 May 2017	Seyed Mohammad Aghili
c300	Kordkuy	Golestan	11 May 2017	Seyed Mohammad Aghili
At least 50	Kordkuy	Golestan	24 May 2017	Seyed Mohammad Aghili
One	Gorgan	Golestan	26 May 2017	Hamid Galeshi, Behnam Galeshi & Behrad Galeshi

Table 2. Records of Eurasian Bullfinch in chronological order in Iran from 10 December 2016–9 February 2017.

	Place	Province	Date	Observer(s)
One female dead	Chalus	Mazandaran	10 December 2016	Ali Musavi
3 males	Shast-Kalateh forest, Gorgan	Golestan	25 December 2016	Hamid-Reza Rezaei
One male	Nahar-Khoran forest, Gorgan	Golestan	30 December 2016	Behrad Galeshi
One female	Jamshidieh park, Tehran	Tehran	During December 2016	Mohammad Tohidifar, Seyed Babak Musavi, Jamshid Karimizadeh, Mohsen Mallah and many others
2	Tabriz	East Azarbaijan	6 & 13 January 2017	Sattar Shiri & Naser Malekzadeh
One male	Nahar-Khoran forest, Gorgan	Golestan	9 January 2017	Behrad Galeshi
4	Marzan-Abad, Chalus	Mazandaran	24 January 2017	Bashir Sharifnia
4–5	Ramsar–Javaher-Deh road, Ghou lake	Mazandaran	26 January 2017	per Abbas Osaei
2 males	Gorgan	Golestan	27 January 2017	Hamid Galeshi, Behnam Galeshi & Behrad Galeshi
At least 6	Talesh	Gilan	2 February 2017	Fardin Naziri
At least one male	Shaft	Gilan	8 February 2017	Mehرداد Rahmanpour
One male	Jamshidiyeh park, Tehran	Tehran	9 February 2017	Mohammad-Reza Komeilian & Hossein Mahmoudian

Kuh (both Mazandaran province), Dimalu, Chalus, Livan, Maragheh and Orumieh 1898–1940 (Khaeghizadeh *et al* 2010). In the 1970s, it was recorded in Kalibar and Arasbaran protected area (with five records in 1970) and Manjil and Lisar (Scott 2008), and recently, 2004–2010, from Boujagh national park, Parvar protected area, Rahim-Abad (Rudsar), and Golestanak (Central Alborz protected area) (Khaleghizadeh *et al*. 2010). It is probably a local breeder in the Iranian province of Azarbaijan. This view is supported by several records in Arasbaran protected area with four records there between April and July and one record in November, all in the 1970s (Scott 2007). However, future studies will reveal its breeding status in Iran.

The winter season of 2017 (late November 2016–March 2017) was a rare cold winter in Iran. This unusually cold winter caused an unusual influx of numbers of these two rare bird species visiting Iran. Fortunately, we could gather nearly all possible records of these two species with the help of the social media. Observations have formally been accepted by the Iran Bird Records Committee (www.iranbirdrecords.ir) and are summarised in



Plate 1. Bohemian Waxwings *Bombycilla garrulus* in Ferdows, South Khorasan province, Iran 11 January 2017. © H Ostovari



Figure 2. Map of Iran showing location of records of Eurasian Bullfinch in Iran during the winter of 2016/2017.



Plate 2. Eurasian Bullfinch *Pyrrhula pyrrhula* in Nahar-Khoran forest, Gorgan, Golestan province, Iran 9 January 2017.
© B Galeshi

Table 3. Minimum temperatures September–June 2015–2017 (IRIMO 2017).

Station	Month	September		October		November		December		January		February		March		April		May		June	
		Year	Day	Temp	Day	Temp	Day	Temp	Day	Temp	Day	Temp	Day	Temp	Day	Temp	Day	Temp	Day	Temp	Day
Shemiran (Tehran)	2015/2016	21	12.3	18	7.6	22	0.4	13	-1.2	29	-5.5	11	-3.8	18	1.0	2	1.1	12	10.8	3	14.4
	2016/2017	30	12.0	24	8.0	25	-8.3	10	-2.4	30	-5.1	3	-6.2	6	1.6	5	1.9	6	9.4	3	15.1
	2017	30	13.2	19	6.5	27	-1.6	9	-1.8												
Gorgan	2015/2016	20	12.5	19	5.2	22	3.1	14	-2.2	30	-2.8	12	-2.3	19	-0.1	3	1.6	4	10.9	14	15.4
	2016/2017	30	13.9	27	5.6	24	-5.9	24	-1.6	6	-3.2	19	-4.0	11	0.9	5	0.7	23	12.2	2	14.8
	2017	30	12.5	18	6.2	27	1.2	5	-1.4												
Now-Shahr	2015/2016	22	16.4	19	9.8	22	4.6	11	2.4	29	0.2	13	1.2	19	4.2	2	5.8	1	14.0	14	15.4
	2016/2017	30	14.8	27	10.6	25	-2.0	19	0.6	24	1.8	18	-0.8	7	3.6	5	4.6	14	13.4	4	17.6
	2017	30	15.4	18	9.8	27	5.8	5	3.2												
Astara	2015/2016	19	16.0	18	8.6	21	5.0	19	0.8	28	-2.0	12	0.2	18	2.2	5	4.8	3	12.0	1	16.0
	2016/2017	27	15.4	27	6.0	25	-2.4	22	-1.6	30	-1.2	18	-3.4	9	3.4	4	2.8	1	12.4	3	16.0
	2017	29	13.8	6	8.4	25	2.0	8	1.6												
Esfahan	2015/2016	22	10.0	24	6.6	26	-3.4	23	-6.6	31	-6.4	12	-6.0	20	0.8	3	3.0	12	11.4	3	16.6
	2016/2017	30	11.4	26	6.6	25	-7.4	17	-4.0	25	-6.6	4	-8.2	8	0.6	6	3.8	2	10.0	4	16.6
	2017	23	10.6	24	6.0	26	-2.4	10	-4.8												

Tables 1–2. There were 25 records of Bohemian Waxwing and 12 records of Eurasian Bullfinch. Records of the Eurasian Bullfinch involved 1–6 individuals (Table 2), whereas only 9 of 25 records of the Bohemian Waxwing involved numbers below 10 individuals (Table 1). High numbers of Bohemian Waxwing were observed in Mashhad and Kordkuy, each with c300 individuals, whilst Jahan-Nama forest had c600 individuals.

Records show that the Bohemian Waxwings entered Iran and migrated from the northeast towards the centre and south of the country. While this species was previously recorded from Meshgin-Shahr, Mashhad, Gorgan, Golestan NP, Bazangan lake and Chabahar (Roselaar & Aliabadian 2009, Scott 2008, Khaleghizadeh *et al* 2010), there were many places newly visited by this species (Table 1). Surprisingly it visited the central provinces of Semnan, Esfahan and Yazd, and even further south in Kerman and Fars provinces (Figure 1). It seems that the Eurasian Bullfinch had a similar pattern but on a smaller scale from the northwest to northern Iran (Figure 2). However, there were more previous records of this species than the Bohemian Waxwing but records in winter in 2016/2017 were restricted to Tabriz, Ramsar, Chalus, Gorgan and Tehran areas (Table 2),

within the range of previous locations of this species in Iran (Roselaar & Aliabadian 2009, Scott 2008, Khaleghizadeh *et al* 2010).

The irruption of these species was likely caused by severe cold. Although all of the relevant data could not be obtained, the minimum temperatures of five stations (Table 3) are presented. In all five stations minimum temperatures in February 2017 were lower than the previous year. In Shemiran, Now-Shahr and Astara minimum temperature was lower in November and December 2016 than the previous and following years (Table 3), whereas in Gorgan and Esfahan, the minimum temperature was lower in November 2016 than the previous and following year (Table 3).

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Avifauna observations May–August 2014

Sarychat-Ertash state reserve, Kyrgyzstan

ALINE KNOBLAUCH

This report summarizes observations made in 2014 between 29 May and 13 August in the Sarychat-Ertash state reserve and surroundings, Issyk Kul region, Kyrgyzstan. Additional avifaunal information was gathered from contacts on the spot. Observations were made while accompanying the Objectif Sciences Internationales Panthera expeditions, targeting Snow Leopard *Panthera uncia* conservation, and thus the itinerary followed more or less closely the transects chosen for that organisation's work. A complete list of bird observations can be obtained from the author. Currently, most work on the avifauna of Kyrgyzstan is either only available in Russian or comes from fragmentary observations from trip reports, while most data remains unpublished. Given the country shows a huge variety of ecosystems, the bird fauna is also diverse. Localized studies such as the effect of habitats on birds in the walnut fruit forest in western Kyrgyzstan, where birds were used as a proxy for evaluating biodiversity (Jalilova *et al* 2013), are important contributions for building a stronger and more precise knowledge of the avifauna of the country. Ayé *et al* (2012) contains the most extensive information in English on bird species distribution within Kyrgyzstan.

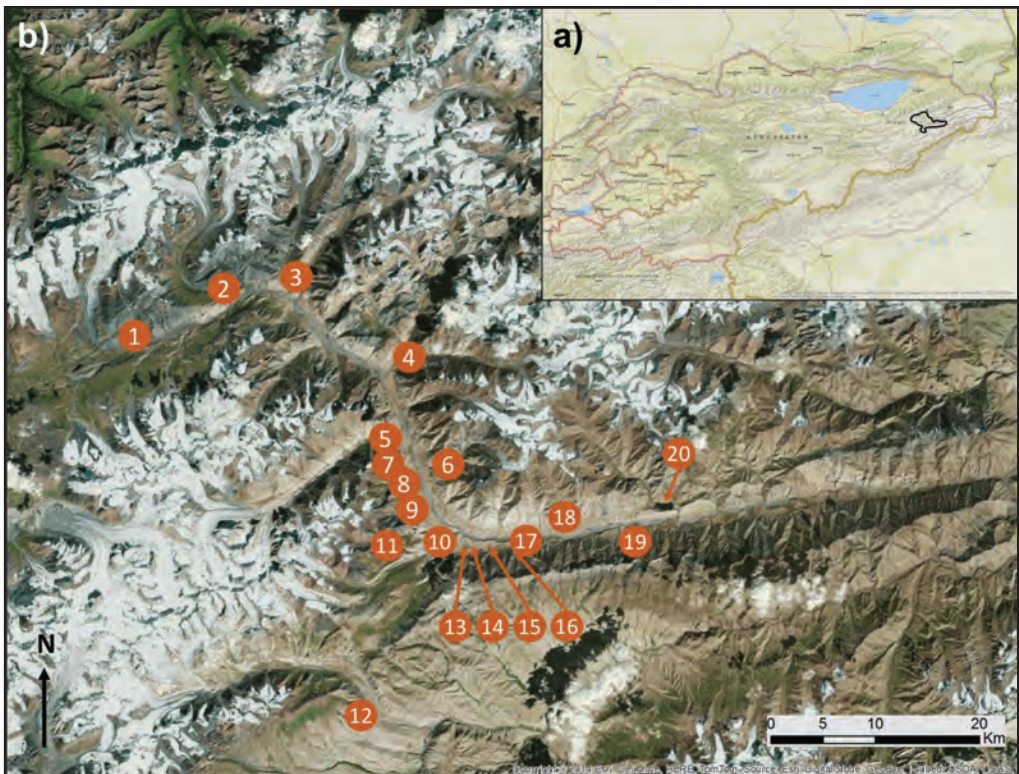


Figure 1. a) Location of the Sarychat-Ertash state reserve in Kyrgyzstan (black outline) and b) map of the Sarychat-Ertash state reserve. The main river (along which most of the points are found) is the Ertash. The orange discs indicate transects and/or camp sites 1: Atcha, 2: Boroko, 3: Bordu, 4: Koylu, 5: Sari-etchki, 6: Jaman-su, 7: Uch-baital, 8: Equibaital, 9: Bir-baital, 10: Eshkart, 11: Kachkator, 12: Koyondu, 13: Sirdibai I, 14: Sirdibai 2, 15: Sirdibai 3, 16: Solomo, 17: below Solomo, 18: Jili-su, 19: Kochotok, 20: Bach kul.



Plate 1. View of the Sarychat-Ertash state reserve, Kyrgyzstan, and the Ertash river (in the background) from Kachkator. © Aline Knoblauch



Plate 2. Ruddy Shelduck *Tadorna ferruginea* chicks near Atcha, Sarychat-Ertash state reserve, Kyrgyzstan. © Aline Knoblauch



Plate 3. Lower part of the Koylu valley, Sarychat-Ertash state reserve, Kyrgyzstan. © Aline Knoblauch



Plate 4. Landscape near Atcha, Sarychat-Ertash state reserve, Kyrgyzstan. © Aline Knoblauch

SITE

The Sarychat-Ertash state reserve, established in Kyrgyzstan in 1995, is a specially protected natural area and no economic activity, including hunting and pastoralism, is allowed within its borders. The access to the reserve is limited to scientific organisations studying and working for the preservation of natural habitats. However, since 2006, the reserve's authorities allow ecotourism groups with a conservation purpose into the reserve accompanied by local rangers as an alternative source of income. Since 1996, cars usually don't go into the reserve and most of the travelling is made by horse or foot. Sarychat-Ertash is located in the central Tian-Shan mountain range, in southeastern Kyrgyzstan (Figure 1a). The Sarychat-Ertash state reserve was created to compensate for establishment of the Kumtor gold mine to the west. Ranging between 2000 m and 5500 m asl, the reserve has a 78 080 hectares core zone and 62 060 hectares buffer zone, making it the country's largest protected area. It is divided, southwest to northeast, by the Ertash river, one of the main rivers of the Tian Shan (Figure 1b).

The climate is harsh with an annual average temperature of -7.5°C , a monthly average of -21.5°C in January and of $+4.2^{\circ}\text{C}$ in June (SER 2007). The vegetation is small, bushes are mainly found along river valley bottoms and there are only few trees, mainly willows, along the Ertash between Jaman-suu and Eshekart, below Solomo, Kochotok, and further south. The main valley in which the Ertash river flows is almost one km wide and rich with short grasses. The mountainsides and ridgelines however quickly become barren as they rise from the valley. For a more detailed description of the reserve, see SER (2007).

Table 1. Bird species recorded in the Sarychat-Ertash state reserve May–August 2014 and the distribution of observations. Sequence and nomenclature is based on Ayé *et al* (2012). + = species observed at the given site; ? = unreliable observation; ✓ = breeding was confirmed for the species; * = indications of possible breeding.

	Atcha	Boroko	Bordu	Koylu	Sari-etchki	Jaman-suu	Uch-baital	Equi-baital	Bir-baital	Eshkart	Kachkator	Koyondu	Sirdibai 1	Sirdibai 2	Sirdibai 3	Solomo	Bel.-solomo	Jili-suu	Kochotok	Bach Kul	Eshkart pass	Breeding
<i>Tetraogallus himalayensis</i>	+			+				+	+		+					+						✓
<i>Alectoris chukar</i>						+				+			+				+	+				✓
<i>Tadorna ferruginea</i>	+					+																✓
<i>Falco cherrug</i>								+														*
<i>Falco tinnunculus</i>		+						+	+					+		+			+		+	✓
<i>Falco subbuteo</i>						+				+												
<i>Gypaetus barbatus</i>	+	+	+	+	+	+		+	+	+	+	+			+	+				+	+	✓
<i>Gyps himalayensis</i>	+			+	+	+		+	+	+	+	+	+	+	+	+		+	+		+	✓
<i>Aegypius monachus</i>				+				+														*
<i>Gyps fulvus</i>								+														
<i>Milvus migrans</i>																						
<i>Accipiter nisus</i>										?									+			✓
<i>Accipiter gentilis</i>										?												
<i>Buteo rufinus</i>												+										
<i>Aquila chrysaetos</i>	+	+	+	+					+	+	+	+	+	+		+						✓
<i>Tringa ochropus</i>	+									+											+	
<i>Actitis hypoleucos</i>						+				+							+					✓
<i>Larus minutus</i>						+																
<i>Columba rupestris</i>	+			+	+										+				+			✓
<i>Cuculus canorus</i>						+			+													*
<i>Athene noctua</i>									?	+												✓
<i>Bubo bubo</i>				+	+	+										+	+	+	+	+	+	✓
<i>Apus apus</i>						+														+		*
<i>Upupa epops</i>						+			+							+	+				+	✓
<i>Lanius phoenicuroides</i>																	+					✓
<i>Pica pica bactriana</i>						+			+										+	+		✓
<i>Pyrrhocorax pyrrhocorax</i>	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	✓
<i>Pyrrhocorax graculus</i>	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	✓
<i>Corvus corax</i>								+	+			+				+						✓
<i>Ptyonoprogne rupestris</i>	+			+	+	+			+		+				+							✓
<i>Hirundo rustica</i>										+												*
<i>Delichon urbicum</i>	+			+	+	+		+	+		+			+	+	+	+	+	+			✓
<i>Eremophila alpestris</i>			+	+	+			+		+	+											✓
<i>Phylloscopus griseolus</i>			+	+															+			✓
<i>Tichodroma muraria</i>	+			+	+	+	+									+						✓

tioned camp sites: Kachkateur, Sirdibai 1, Uch Kul river bed.

- 10.07.2014–23.07.2014 Sirdibai 3, Kochotok, Solomo, Solomo to Eshekart along the Ertash river, Jaman-suu. Camping sites: Eshekart, bottom of the Solomo valley ('below Solomo'), Jaman-suu.
- 31.07.2014–13.08.2014 Equibaital, Kochotok, Solomo, below Solomo, Birbaital, Jaman-suu. Camp sites: Eshekart, Kochotok, Jaman-suu.

RESULTS AND DISCUSSION

Being geographically isolated, the Sarychat-Ertash state reserve is an important haven for wild animal species, and despite its arid aspect, a total of 109 bird species – amongst which about half are breeders – have been recorded within its boundaries. During our expedition, we observed a total of 58 species, of which the most abundant were passerines (34 species) and birds of prey (13 raptor species + 2 owls). A full species list as well as the distribution in the reserve of the observations is in Table 1. Of the observed species, 22 are considered to be resident, and 43 are known to breed in the reserve. Following is a list of species being either on the IUCN Red List of endangered species, on the Red List of Kyrgyzstan (Ministry of Justice of the Kyrgyz Republic 2009), or their breeding range being outside the range indicated in Ayé *et al* (2012).

Table 2. Coordinates and names of sites corresponding to numbers on Figure 1.

	Valley / camp name	Latitude °N	Longitude °E
1	Atcha	42.020802	78.311914
2	Boroko	42.046174	78.382664
3	Bordu	42.051448	78.431569
4	Koylu	41.997438	78.512586
5	Sari-etchki	41.955410	78.537576
6	Jaman-suu	41.938809	78.546344
7	Uch-baital	41.946236	78.537508
8	Equi-baital	41.935882	78.542089
9	Bir-baital	41.914585	78.553694
10	Eshekart	41.894216	78.567693
11	Kachkator	41.889839	78.527661
12	Koyondu	41.789719	78.506314
13	Sirdibai 1	41.885736	78.574874
14	Sirdibai 2	41.886138	78.585979
15	Sirdibai 3	41.885634	78.607156
16	Solomo	41.88662	78.630145
17	below Solomo	41.894800	78.644541
18	Jili-suu	41.898441	78.670195
19	Kochotok	41.898826	78.715640
20	Bach Kul	41.913430	78.765455

Saker Falcon *Falco cherrug* (Endangered (IUCN) & Red List of Kyrgyzstan)

One individual was observed flying between Sarietchki and Ekibaital 3 June. In Kyrgyzstan the species is a victim of smuggling for the falconry trade.

Lammergeier *Gypaetus barbatus* (Red List of Kyrgyzstan)

The species is breeding in the reserve and was observed regularly during the whole summer and throughout the reserve. In total, 58 observations were made and on 4 August two adults were observed gripping each other's claws several times in flight. The species is known to be nesting in Tchong Bordu and near Ak-Shirak.

Himalayan Griffon *Gyps himalayensis* (Red List of Kyrgyzstan)

This species breeds and is widespread in the reserve. It was regularly observed during the whole period. A total of 55 observations were made and nests are known in Jaman-suu, Koylu, Uch Kul, Bach Kul.

Table 3. Observations of particular interest, shared by Prof Alexander Vereshagin.

		Status	Comment
Tundra Swan	<i>Cygnus colombianus</i>	Outside of described range	Highlands between Karasay and Koyondu
Garganey	<i>Anas querquedula</i>	Outside of described range	Breeding
Goosander	<i>Mergus merganser</i>	Outside of described range	
Black Stork	<i>Ciconia nigra</i>	Red List of Kyrgyzstan	Highlands between Kumtor and Koyondu (A Knoblauch, July 2013)
Great Bittern	<i>Botaurus sellaris</i>	Outside of described range	Highlands between Kumtor and Karasay
Barbary Falcon	<i>Falco pelegrinoides</i>	Red List of Kyrgyzstan	
European Honey-buzzard	<i>Pernis apivorus</i>	Outside of described range	
Upland Buzzard	<i>Buteo hemilasius</i>	Outside of described range / lack of data	
Ibisbill	<i>Ibidorhyncha struthersii</i>	Red List of Kyrgyzstan	Between Koyondu and Bordu
Lesser Sand Plover	<i>Charadrius mongolus</i>	Outside of described range	
Wood Sandpiper	<i>Tringa glareola</i>	No distribution map Ayé et al 2012	
Common Kingfisher	<i>Alcedo atthis</i>	Outside of described range	
Oriental Skylark	<i>Alauda gulgula</i>	Outside of described range	
Asian Paradise Flycatcher	<i>Terpsiphone paradisi</i>	Red List of Kyrgyzstan	Erratic. Observed once near Koyondu
Eurasian Nuthatch	<i>Sitta europea</i>	Outside of described range	
Common Redpoll	<i>Carduelis flammea</i>	Outside of described range	
Yellowhammer	<i>Emberiza citrinella</i>	Outside of described range	
Grey-necked Bunting	<i>Emberiza buchanani</i>	Outside of described range	

Cinereous Vulture *Aegypius monachus* (Red List of Kyrgyzstan)

Two individuals were observed flying together opposite the waterfall situated in Tchong-Koylu 25 June and one individual was observed flying above Equibaital on 3 August. Additionally, one individual was observed in Eshekart in 2013 and in Bordu and Boroko in 2009 (B Chaix).

Eurasian Griffon *Gyps fulvus* (Red List of Kyrgyzstan)

One individual observed flying Equibaital 3 August.

Golden Eagle *Aquila chrysaetos* (Red List of Kyrgyzstan)

The species breeds in the reserve. A total of 33 sightings were made and territorial conflicts were observed between three adults on 29 June (between Jili-Bulak and Uch Kul) and 2 August (above Eshekart). Two young (~35 days old) observed 25 June in an aerie opposite an abandoned wagon used as a camp site in Koylu.

Pairs of Golden Eagles have been detected in Koyondu, Sirdibai, Koylu, Kitchi Bordu, Boroko, between Birbaital and Sari-etchki and in Atcha and a density of 1.2 pairs per 100 km² (five known nests + three couples with probable breeding) was calculated (Chaix 2010).

Eurasian Eagle-Owl *Bubo bubo* (Red List of Kyrgyzstan)

Nine observations made and two nests discovered. In Koylu (25 June), one dead chick (c40 days old) was found on the ground under the aerie and one living chick of c45 days

old was observed in the aerie. The other nest was discovered 19 July, downstream of the Jaman-suu camp (located downstream of the junction between the Jaman-suu and the Ertash rivers, on the right shore) and contained at least one chick. Adults were observed flying over our camp at Jaman-suu both during the night and early morning.

Together with observations from other years and other observers, nests of Eurasian Eagle-Owl are known in Koylu, Jaman-suu, Solomo, Bach Kul, Uch Kul and there should be five others downstream of Solomo.

Great Spotted Rosefinch *Carpodacus severtzovi* (breeding)

The species can regularly be observed in groups around the Eshekart hut and one pair was seen in Jaman-suu. The first observation took place 31 May and breeding has been confirmed in the reserve. The last observation took place 13 July (group in Eshekart).

With the Kumtor open-pit gold mine lying just west of the reserve, the economic pressure blocks all potential westward expansion of the reserve. It is one of the largest gold mines in the world and its GDI represented c8 percent of Kyrgyzstan's total GDP in 2016 (Kumtor gold mine 2016). Furthermore, trophy hunting concessions block further expansion of the territory in other directions, given their camps possess designated territories neighbouring the reserve's area (Farrington 2005). The presence of the emblematic Snow Leopard plays an important part in both the establishment of the site and the preservation of the Sarychat-Ertash state reserve, involving several international organizations such as the Snow Leopard Trust, the WWF and OSI-Panthera. Nonetheless, the presence of the red-listed bird species within the boundaries of the reserve, and more importantly breeding records regarding these species, add to the importance of this high altitude ecosystem reserve.

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First confirmed record of Whinchat *Saxicola rubetra* from Afghanistan

ALI MADAD RAJABI & STÉPHANE OSTROWSKI

On 29 May 2018 at 15.25 h AMR saw in Qila-e Panja village (Wakhan district, Badakhshan province, Afghanistan), a small passerine moving on the ground with small hops, in a wet meadow with scattered sea buckthorn *Hippophae rhamnoides* shrubs. It was feeding on insects or other small invertebrates. Initially thought to be one of the many Siberian stonechats *Saxicola maura* present in the area, a prominent white supercilium and relatively long wings piqued our curiosity. It had a buff-streaked blackish face and crown, a strong white malar stripe, and a bright orange throat and breast. The upperparts and rump were mottled dark, the tail was dark brown with white outer feathers. The bird was observed for 10–15 minutes and good photographs were taken (Plates 1,2). SO confirmed that it was a male Whinchat *Saxicola rubetra* in breeding plumage.

The Whinchat is a migratory passerine breeding in Europe and western Asia, east to the Ob river basin in Russia and wintering in tropical Africa (Collar & Garcia 2018). Although Afghanistan could be part of the migratory flyway of individuals from the easternmost Asian populations, there has been so far only a single observer sight record from Afghanistan and that needs verification (Smith 1974). The staff of the Wildlife Conservation Society have been present continuously in Wakhan district (which became a national park in 2014) since July 2006 and has recorded all bird observations in a database, but ours is the first confirmed record of Whinchat in Wakhan and Afghanistan.



Plate 1. A male Whinchat *Saxicola rubetra* in breeding plumage, Wakhan national park, Afghanistan 29 May 2018.



Plate 2. A male Whinchat *Saxicola rubetra* in breeding plumage, Wakhan national park, Afghanistan 29 May 2018.

Comprehensive ornithological surveys of Wakhan have also been carried out in July–August 2006 (Reza 2006), September–October 2007 (Ayé 2007) and June 2008 (Timmins 2008) but did not record the species.

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First record of breeding Boreal Owl *Aegolius funereus* on Bamyan plateau, Afghanistan

SAYEED NAQIB MOSTAFAWI, MOHAMMAD, GHULAM HASSAN, ALBERT DRIESCHER & STÉPHANE OSTROWSKI

The full extent of Boreal Owl's *Aegolius funereus* range in Asia has not been documented (Koopman *et al* 2005) but it seems that south of the Asian boreal forests the species survives in isolated populations, as supported by the handful of documented breeding records in India, Pakistan, Kyrgyzstan and Tajikistan (Koopman *et al* 2005). However, because the species is nocturnal and commonly found at relatively high elevations in remote habitats where fewer scientific surveys are conducted, it is possible that the species might be more widespread in the central Asian highlands than reflected in the current literature.

On 24 June 2018 in the morning (c10.20) during an ornithological survey in Chapchal canyon (c 35° 20' N, 67° 14' E) in the northeast of Bamyan plateau, Bamyan province, central Afghanistan, we observed a small whitish-spotted dark chocolate-brown owl flying from rocks to shrubs and producing alarm 'keek, keek, keek' calls. The bird was not shy and we observed it for more than 15 minutes and photographed it. It had an overall dark brown coloration and the primaries and secondaries had whitish round spots. The tail was dark brown with three visible bars of whitish dots. Underparts were whitish with brown streaks. The head and neck were dark brown with a rather square facial disk surrounded by dark brown down feathers and iris colour of eyes was yellow. We identified it as a juvenile Boreal Owl. Lars Svensson (pers comm 7 July 2018) confirmed the identification from a photograph (Plate 1).



Plate 1. A juvenile Boreal Owl *Aegolius funereus* in Chapchal canyon 24 June 2018, Bamyan plateau, Bamyan province, Afghanistan.



Plate 2. This picture of the Boreal Owl *Aegolius funereus* in Chapchal canyon, Bamyan plateau, Bamyan province, Afghanistan 24 June 2018, shows the brownish soft feathering with mesoptile feathers still covering wing coverts, as in recently fledged (4–6 weeks-old) specimens (Cramp 1985).

The Bamyan plateau is a c54 000 km² mountainous landscape in the central Hindu Kush range of Afghanistan. The terrain is mostly arid and very remote with precipitous peaks rising to 4200 m interspersed with gently rounded, vegetated mountaintops up to 3200 m in elevation. The Boreal Owl was found at an altitude of 2963 m (GPS hand held unit) in the bottom of a deep canyon with cliffs more than 150 m high (Plate 3). The vegetation of the canyon was composed of grasses and canyon-bottom shrub communities including *Lonicera bracteolaris*, *Rosa beggeriana*, *Ephedra major* and 1–3 m tall *Ribes villosum* bushes on which the bird was occasionally seen roosting. Scattered *Juniperus excelsa* trees grew on rock walls. Although the habitat used by the observed owl in Bamyan is remarkably different from the species' typical habitat normally characterized by rather extensive boreal, temperate or subalpine forests (mostly coniferous) of aged trees, its habitat in Bamyan seems relatively similar to the 'subalpine juniper scrubs and stunted tree' habitat described for the nearest known record located c700 km to the east, in northern Pakistan, where a single calling male was recorded in February 1986 (Grimmett *et al* 2008). The elevation is allegedly the highest so far reported for the species in Asia (König & Weick 2008).

The bird was in brown soft feathering, still had some mesoptile feathers on wing-coverts, head and body (Plate 2) and was observed often resting and calling from the ground, we concluded that it was recently fledged, estimated at 4–6 weeks old, and probably still dependent on the adult for food (Cramp 1985, Korpimäki & Hakkarainen 2014).

In a recent telemetry study in the Orel mountains, Czechia (Czech Republic), Boreal Owl fledglings became independent at 7–9 weeks of age between 5 July and 3 August and had by then dispersed a maximum of two km from the hatching site (Kouba *et al* 2013). Although post-natal dispersal of Boreal Owl is known to vary in spatial extent according to different factors and particularly food availability, to our knowledge the maximum-recorded dispersal distance from hatching site by age of independence was 21 km for one individual (Vikström 1988 in Korpimäki & Hakkarainen 2014). Based on the age estimate and available knowledge on post-natal dispersal in Boreal Owl in Europe we believe that the bird was native to the Bamyan plateau.

This is the first record of the species in Afghanistan and probably the southwestern-most record for Asia. As the only known breeding site for the species in Afghanistan, Bamyan plateau is of national importance for the species' conservation.

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Plate 3. The habitat of the recently fledged Boreal Owl *Aegolius funereus* in Chapchal canyon, Bamyan plateau, Bamyan province, Afghanistan, 24 June 2018.

High elevation records of Sooty Falcon *Falco concolor* in northern Iran

MOHAMMAD R KASHFI, DANIAL NAYERI & ALI T QASHQAEI

Sooty Falcon *Falco concolor* is a rare-in-Iran, diurnal, mainly insectivorous, migratory, gregarious, monogamous and medium-sized falconid. It mainly breeds in Libya, Egypt, and the Arabian peninsula and the vertical distribution range of the species is 0–1500 m asl (Aspinall 2010, BirdLife International 2017, Cramp & Simmons 1980, Frumkin & Pinshow 1983, Javed *et al* 2012, Kaboli *et al* 2016, McGrady *et al* 2016, Shah *et al* 2008). Records of Sooty Falcon *Falco concolor* in Iran, 1912–2015, are presented in Table 1.

We recorded the species at a relatively high elevation in northern Iran. Our observation site was the mountainous area near Tar and Havir lakes in the southern valleys of the Central Alborz mountain range (Figure 1). Average annual precipitation is 500 mm (300–800 mm) and the temperature range is –20 to 30°C in the area. Observations of the falcons occurred opportunistically during bird-watching and photography in summer 2013 and 2015. On 2 August 2013, 10.32 h in the morning, a Sooty Falcon was recorded in the open V-shaped valley (2900 m asl) near Aroo village, Tehran province (Plate 1, Figure 1, Table



Figure 1. Distribution of Sooty Falcon records *Falco concolor* in Iran: 1. Chabahar, 2. Bandar Abbas, 3. Qeshm island, 4. Naybandan, 5. Zarin Abad, 6. Central Alborz.

Table 1. Records of Sooty Falcon *Falco concolor* in Iran 1912–2015.

Observation	Location	Coordinates	Date	Source/Reference
A male collected	Chabahar, Sistan & Baluchestan province	25° 17' 31" N 60° 38' 35" E	31 August 1912	Quetta Museum, Ticehurst (1926–27), Roselaar & Aliabadian (2009)
Single recorded	Chabahar, Sistan & Baluchestan province	25° 17' 31" N 60° 38' 35" E	31 August 1912	Quetta Museum, Ticehurst (1926–27), Roselaar & Aliabadian (2009)
Single captured	Chabahar, Sistan & Baluchestan province	25° 17' 31" N 60° 38' 35" E	August 1927	Moreau (1969), Hüe & Etchécopar (1970), Scott (2008)
Single recorded	Bandar Abbas, Hormozgan province	27° 11' 0" N 56° 16' 0" E	1 November 2000	Khaleghizadeh et al (2011)
Three breeding pairs recorded	western part of Qeshm island, Hormozgan province	26° 40' 0" N 55° 34' 0" E	Summer 2002	Khaleghizadeh et al (2011)
Two recorded	Naybandan area near Tabas, Yazd province	32° 13' 52" N 57° 30' 13" E	August 2005	Fahimi & Jowkar (2010), Khaleghizadeh et al (2011)
A single recorded	Naybandan area near Tabas, Yazd province	32° 29' 08" N 57° 25' 14" E	20 July 2008	Fahimi & Jowkar (2010), Khaleghizadeh et al (2011)
A single recorded	Naybandan area near Tabas, Yazd province	32° 13' 52" N 57° 30' 13" E	1 August 2010	Fahimi & Jowkar (2010), Khaleghizadeh et al (2011)
One recorded	Central Alborz	35° 40' 57" N 52° 23' 02" E	2 August 2013	This paper
An injured individual on ground	Zarin Abad, Pahleh, Dehloran, Ilam province	33° 0' 30" N 46° 51' 45" E	Late August 2014	DoE, Ilam Office of Department of the Environment (unpublished)
Two individuals recorded	Central Alborz	35° 42' 58" N 52° 18' 48" E	22 June 2015	This paper



Plate 1. Sooty Falcon *Falco concolor* near Aroo village, Central Alborz, northern Iran, 2 August 2013.

1). On 22 June 2015 at 14.02 h in the afternoon, two Sooty Falcons were documented in the U-shaped valley (2500 m asl) near Havir village (Figure 1, Table 1).

According to the literature (Table 1), our observations are the northernmost records in Iran. For both records, at first look, we thought that our falcons were Hobbies *F. subbuteo*, but with closer inspection of the photographs, it was clear that the falcons were Sooty Falcons. In fact, we did not expect to observe Sooty Falcon in the Alborz mountains and at that high altitude, 1400 m above the previous highest reported elevation (BirdLife International 2017).

Jennings (2010), for the Arabian peninsula, and Shirihai (1996), for Israel, are agreed that eggs are not laid until well into July, or even August. The species is known to wander extensively in the pre-breeding period. Eleonora's Falcon *F. eleonorae* wanders over very large areas, far from the nesting islands and appears in habitats totally unsuitable for breeding, including at high altitude. There is no reason for Sooty Falcon not to do likewise.

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Photographic evidence of a 2nd calendar-year female European Honey Buzzard *Pernis apivorus* on autumn migration in the Western Palearctic

JOHN WRIGHT, SIMON CAVAILLÈS & WOUTER MG VANSTEELEANT

The European Honey Buzzard *Pernis apivorus* is the most common long-distance migrant raptor in the Afro-Palearctic flyways (Bildstein 2006). Although honey buzzards are relatively flexible flyers among soaring birds (Horvitz *et al* 2014, Vansteelant *et al* 2017b), capable of traversing large bodies of water (Agostini *et al* 2012), the majority of adults aggregate in overland migration flyways around the Mediterranean and Black seas (Porter & Beaman 1985, Shirihai *et al* 2000, Verhelst *et al* 2011, Martín *et al* 2016). The largest autumn passage of Honey Buzzards in the world takes place along the eastern Black sea coast of Georgia, where on average c534 000 birds are counted every autumn by volunteers of the Batumi Raptor Count (Verhelst *et al* 2011, Vansteelant *et al* In review). Only a small fraction (c5.8%) of these Honey Buzzards are juvenile (c31 000 birds yr⁻¹, Vansteelant *et al* In review). That is because juveniles leave from their natal sites about two weeks later than adults, so they cannot learn the way to traditional bottlenecks by following elders (Hake *et al* 2003, Vansteelant *et al* 2017a). This stands in sharp contrast to the behaviour of larger obligate soaring migrants like large eagles and vultures, in which young birds follow unrelated elders into traditional soaring flyways on their first autumn migration (Oppel *et al* 2015, Mellone *et al* 2016, Meyburg *et al* 2017). Instead juvenile Honey Buzzards follow an innate compass direction to the south-southwest, and drift with prevailing winds during their first outbound migration (Thorup *et al* 2003ab, Vansteelant *et al* 2017a). Those juveniles that manage to reach sub-Saharan Africa are generally expected to stay there at least 18 months before they first return to Europe (Corso 2012, Panuccio & Agostini 2012; Strandberg *et al* 2012). It is not yet known when and how they ultimately learn the overland detours used by the majority of the adult population.

In the past substantial numbers of 2nd CY Honey Buzzards have been reported from spring migration watch-sites in Italy (c3.5% of spring migrants in Ustica and Messina, Panuccio *et al* 2004, 2006) and Israel (Shirihai *et al* 2000). However, it was later argued that many of these birds were likely aged incorrectly due to overreliance on non-diagnostic features such as the colouration of bare parts (which varies substantially across immatures and adults) (Corso 2005, 2012). Many reliable records of 2nd CY Honey Buzzards in Europe, including specimens in museum collections, originate from late winter to early spring, well before the main migration period of this species. These were individuals that never reached Africa during their first autumn migration, rather than birds that returned from Africa in their 2nd CY (Corso 2012). The issue has not been fully resolved as researchers at Messina maintained that their observations were reliable (Panuccio & Agostini 2012) and it could be that due to their inexperience 2nd CY Honey Buzzards that do return to Europe end up in the central Mediterranean flyway more often than experienced adults that learned overland flyways across Gibraltar to the west, or via Israel to the east of the Mediterranean. Complicating matters further, the number of migrant 2nd CY Honey Buzzards observed in spring in southern Italy seems to be increasing in recent years (2014–2018) (Corso unpubl, pers com). All considered, however, the fact there are so few uncontested spring and summer observations (Forsman 2016, Corso 2005, 2012), and to our knowledge no published autumn records, corroborate the notion that Honey Buzzards

rarely leave Africa before their 3rd CY. That is notwithstanding there is little published information about plumage details, nor photographic reference material, to aid observers in the recognition of 2nd CY Honey Buzzards.

OBSERVATION

During a day of low migration intensity, 17 September 2017, JW spotted a European Honey Buzzard with a ragged appearance approaching the most inland of two count stations of the Batumi Raptor Count project (41° 41' 13.2" N, 41° 46' 45.5" E, 414 m asl). At Batumi we often see oddly shaped birds that are usually individuals that have sustained feather damage from non-lethal lead shot (illegal hunting is widespread in the region, Sandor *et al* 2017), or, in case of juveniles, due to abrasion of weak sections in the flight feathers (*ie* fault bars). Digital photography allows for an accurate *ad hoc* examination of birds with such a ragged plumage. On this occasion photographs confirmed JW's impression that the ragged appearance of the bird was not caused by feather damage, but by the fact the bird had moulted many more flight and tail feathers than we had ever observed in adult Honey Buzzards.

PLUMAGE DESCRIPTION

The striking appearance of the bird is due to a clear contrast between worn and abraded juvenile feathers and freshly moulted adult-type feathers (Plate 1). The freshly moulted inner primaries protrude clearly beyond the older outer primaries. As indicated by Forsman (2016) this gives the wing a distinct shape from the gently S-shaped trailing edge of juvenile Honey Buzzards and the broader hand of adult birds. The freshly moulted central tail feathers, protruding far behind the worn tail feathers, are also very conspicuous (Plates 1, 2).

Moult

In both wings primaries show freshly moulted P1–5 and growing P6, while P7–10 are of the juvenile type. This is in contrast to adults that do not moult more than 4 primaries before autumn migration (males 0–3, females 2–4; Forsman 2016). The juvenile outer fingers show a sharp contrast between dark fingers and white base of the feather; a helpful feature to separate juveniles from tricky juvenile-like females. Secondaries are mostly of the juvenile type, except the outermost secondary of the right wing and the two outermost secondaries of the left wing which are freshly moulted (Plate 1). The juvenile-type secondaries are



Plate 1. 2nd calendar-year European Honey Buzzard *Pernis apivorus*, Batumi, Georgia 17 September 2017. © John Wright



Plate 2. 2nd calendar-year European Honey Buzzard *Pernis apivorus*, Batumi, Georgia 17 September 2017. © John Wright

typical of young Honey Buzzards, showing a bulging shape, being dark and showing 3 evenly spaced broad bars, lacking the dark trailing edge of the newly grown adult feathers. The bird had not only moulted the central tail feathers (as observed in late summer by Forsman 2016) but also the outermost tail feathers (Plate 1). The head and upper breast are moulted, contrasting with the light brown belly and underwing coverts where few feathers are fresh, giving a mottled aspect to the bird.

Bare parts

The iris is a dull yellowish-ochre and not as clean and bright as an adult and the bill is generally dull grey apart from a hint of pale yellow at the base (on the bare cere).

Sex

The adult-type inner primaries show a dark trailing edge combined with 3 rather broad bars spread across the feather, the outermost bar being close to the dark tip of the feather, indicating that this bird is female. The pattern of fresh adult-type tail-feathers shows a dark tip which is noticeably less solid than one would expect for an adult male.

DISCUSSION

To our knowledge this is the first autumn migration record and photographic evidence of a 2nd CY European Honey Buzzard in the Western Palearctic. This offers a rare opportunity to learn more about the moult strategy of immature Honey Buzzards. We know from spring observations of 2nd CY Honey Buzzards in Europe that immatures initiate body moult in Africa, prior to their first return migration. The observation at Batumi confirms that 2nd CY Honey Buzzards can moult flight and tail feathers faster than adults (Forsman 2016). A similar age-specific moult pattern is observed in almost all other raptors that engage in long-distance migration and that take several years to reach sexual maturity (eg Oriental Honey Buzzard *P. ptilorhynchus*, Black Kite *Milvus migrans*; Forsman 2016). Immature birds do not yet invest energy in breeding, allowing them to initiate moult earlier and perhaps even develop feathers faster than adults (Newton 2011).

Adult female Honey Buzzards moult 2–4 primaries on the breeding grounds compared to 0–3 primaries moulted by adult males before the start of autumn migration (unpublished data, see also Forsman 2016). It is likely that timing of moult diverges only after sexual maturation, as a result of sex-specific reproductive effort. Indeed, female raptors tend to start moulting earlier than male raptors, usually during the incubation period, when the latter need to invest much more energy in foraging and provisioning (Newton 2011). Accordingly, we expect non-breeding male 2nd CY Honey Buzzards to show a similar moult pattern when seen in Europe in autumn.

The 2nd CY female we observed at Batumi clearly interrupted moult for migration. Individuals which stay in Africa throughout their 2nd CY probably complete wing moult even faster by skipping migration altogether. On the other hand, immature Honey Buzzards that do not yet migrate to Europe often engage in intra-African movements (Strandberg *et al* 2012), and immatures moving between distant wintering sites may need to suspend moult as well. Unfortunately, disentangling how moult schedules are fine-tuned in relation to age and sex-dependent migration and reproductive schedules will be very challenging for this species. The chance of seeing a 2nd CY Honey Buzzard in Europe might be one in a million or less (Corso 2012) and Honey Buzzard sightings from sub-Saharan Africa are relatively rare. We strongly encourage observers in the OSME-region, and all across Europe and Africa, to document 2nd CY Honey Buzzards through digital photography and detailed field notes whenever the opportunity presents itself.

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Man-made waterbodies in Kurdistan province, western Iran, as refugia for waterbirds

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Wetland ecosystems play a key role in biodiversity conservation. Though artificial waterbodies do not have the functionality of natural wetlands, they can constitute new habitats for bird species and act as their refugia. Over three years, we carried out avifaunal surveys at three major man-made waterbodies (Vahdat, Shahid Kazemi and Gavoshan dams) in Kurdistan province, western Iran, to provide their first checklist of bird species and to see if they can act as refugia for bird species during the drought conditions of the region. A total of 78 bird species were recorded during these surveys. Two species are listed in Appendix I and eight species in Appendix II of the Convention on International Trade in Endangered Species (CITES). Seventy-four species (93.7%) are listed as Least Concern, two Vulnerable and two Near Threatened in the IUCN Red List of Threatened Species. This study suggests that these man-made structures can act as alternatives to natural wetlands and can provide suitable habitats for many bird species. Effective protection in these areas requires the prevention of human disturbance including illegal hunting, overfishing and human disturbance.

INTRODUCTION

Though man-made structures are often associated with habitat destruction, creation of new ones can be advantageous for some bird species (Bird *et al* 1996, Terman 1997, Murgui 2009). Due to the degradation or loss of natural habitats, artificial waterbodies including rice fields, gravel pits, reservoirs, marshes, small ponds or large dams become alternative habitats for some terrestrial and waterbird species (Fasola & Ruiz 1996, Tourenq *et al* 2001, Ma *et al* 2004, Santoul *et al* 2004). Therefore, from the viewpoint of conservation biology, these artificial habitats may gain significant importance for various globally-threatened bird populations (Geslin *et al* 2002, Nijman *et al* 2008, Colding & Folke 2009). It has already been shown that man-made artificial waterbodies may act as refugia and can play a key ecological role for the persistence of biodiversity in areas subject to natural or human disturbance (Hermoso *et al* 2013).

Kurdistan province is located in western Iran and has recently been subject to ornithological survey (*eg* Zarei *et al* 2017, Zarei *et al* 2018), however, field ornithology still has a lot to accomplish in this province (Khaleghizadeh 2007a, Roselaar & Aliabadian 2007). Its great habitat diversity and numerous aquatic habitats, both natural (*eg* Zarivar wetland) and man-made (*eg* Gheslugh dam and Golbolagh dam), seem to provide critical feeding, staging and wintering grounds for many migratory birds such as waders and ducks in the African–Eurasian flyway.

This paper summarizes avifaunal information collected during three years of field observations at the three largest dams (Shahid Kazemi, Vahdat, Gavoshan) across Kurdistan province to provide the first checklist of avifauna of these dams and to highlight the potential effect of artificial waterbodies on wild birds as alternative habitats to natural wetlands.

MATERIALS AND METHODS

Study area

Kurdistan province (total area 28 203 km²) is located on the western edge of the Iranian plateau between 34° 44'–36° 30' N and 45° 31'–48° 16' E, sharing its northern border with West Azerbaijan province, the southern border with Kermanshah province, the

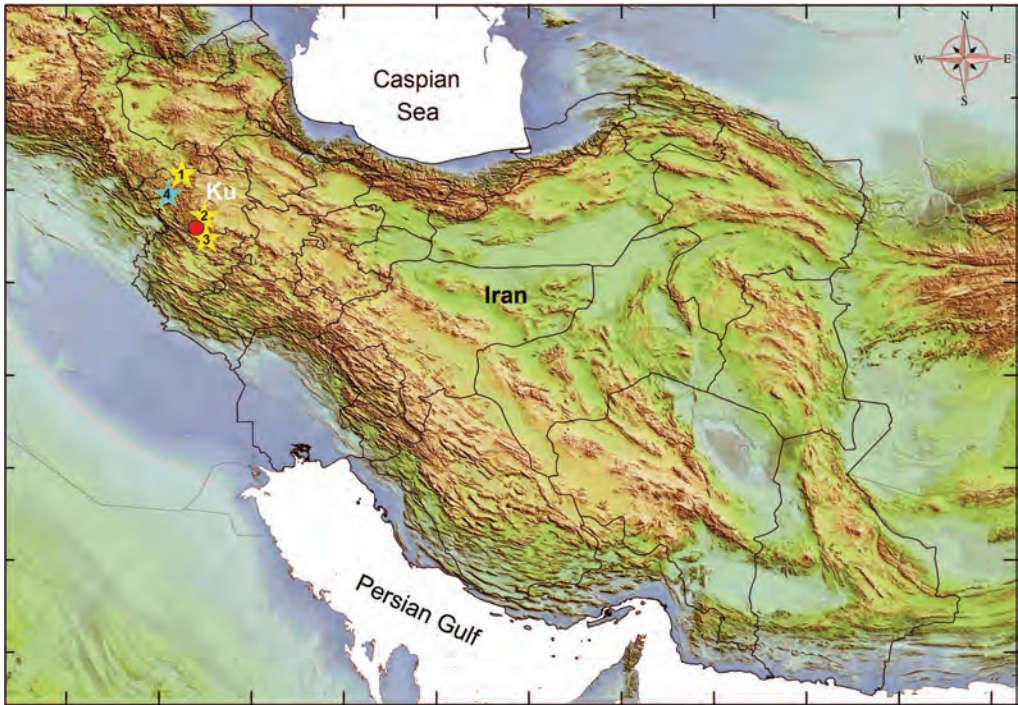


Figure 1. Map of Iran, showing the geographic location of the studied dams in Kurdistan province (Ku), Iran. 1 Shahid Kazemi dam, 2 Vahdat dam, 3 Gavoshan dam and of the Zarivar wildlife refuge/wetland (4). The red dot shows the location of the city of Sanandaj, capital of Kurdistan province. Map prepared using Global Mapper 18 (Global Mapper Software LLC, Olathe, Kansas) and Surfer 11 (Golden Software, LLC).

western border with Iraq, and the eastern border with Zanjan and Hamedan provinces. Elevation ranges from 900–3390 m asl. Annual precipitation ranges from 400 mm in the central highlands to more than 800 mm in the western mountainous areas (Ghasriani 1998). Kurdistan has a rich flora including 2110 species; c25% of plant species recorded throughout Iran (Maroufi 2012). Associated with society’s water demands, many artificial waterbodies of different sizes and purposes have been built in the province. Of these, the three largest dams in the province were selected (Figure 1): Vahdat dam: 35° 26’ N, 46° 59’ E, 1526 m asl, area 934 ha, Plate 1, 13 km north of Sanandaj (capital of Kurdistan province); Shahid Kazemi dam: 36° 21’ N, 46° 30’ E, 1402 m asl, area 3897 ha, Plate 2, 16 km east of Saqqez and lastly Gavoshan dam: 34° 57’ N, 47° 2’ E, 1486 m asl, area c1250 ha, Plate 3, 39.7 km south of Sanandaj.

Data collection

Bird surveys were carried out at the three dams between April 2015 and November 2017, the survey effort not being constant each month. Birds were identified in the field using various ornithological field guides (eg Porter *et al* 2004, Svensson *et al* 2009, Mansoori 2013). To identify threats, we gathered the views of local experts, birdwatchers and rangers, on probable threats to birds at the studied waterbodies. Also, the conservation status for each recorded species was provided using the Convention on International Trade in Endangered Species (CITES; www.cites.org) and the International Union for Conservation of Nature (IUCN; www.iucn.org) Red List of Threatened Species.



Plate 1. A view of Vahdat dam. © Loghman Maleki



Plate 2. A view of Shahid Kazemi dam. © Fatah Zarei



Plate 3. A view of Gavoshan dam. © Loghman Maleki



Plate 4. Eastern Zarivar wetland. © Fatah Zarei

RESULTS

During the fieldwork, a total of 78 bird species were recorded (Table 1). 45 species (57.7%) were waterbirds/waders. The most common threat at all three dams was drought, followed by human intrusion and disturbance including hunting, noise, motor vehicle traffic and overfishing. Recorded species at each site, their status for Kurdistan province (resident, migrant *etc*) and preferred habitats are presented in Table 1.

Vahdat dam

Seventy-five avian species were recorded at Vahdat dam. One species (Peregrine Falcon) is listed in Appendix I of CITES and six species (Eurasian Spoonbill, Eurasian Sparrowhawk, Common Buzzard, Little Owl, Lesser Kestrel and Common Kestrel) in Appendix II of CITES. In the IUCN Red List, seventy-one species (94.6%) are LC, two VU (Common Pochard, European Turtle Dove) and two NT (Ferruginous Duck, Northern Lapwing).

Shahid Kazemi dam

Sixty-four species were recorded. Two species are listed in Appendix I (Peregrine Falcon, Barbary Falcon) and four species in Appendix II of CITES (Eurasian Spoonbill, Eurasian Sparrowhawk, Common Buzzard, Little Owl). Sixty species (93.7%) are LC, two VU (Common Pochard, European Turtle Dove) and two NT (Ferruginous Duck, Northern Lapwing) in the IUCN Red List. Presence of numerous small islands behind this dam protect birds from the threats of natural predators. In addition, these small isolated areas provide a safe staging and breeding ground for many birds including gulls, ducks,

Table 1. Checklist and conservation status of birds at three dams in Kurdistan province. Status is based on Kaboli *et al* (2016), Khaleghizadeh *et al* (2017), our observations and personal communications: R = resident; S = summer visitor and breeding; s = summer visitor but not breeding; W = winter visitor; P = passage migrant. Nomenclature and sequence follow Khaleghizadeh *et al* (2017) and the Iran Bird Records Committee (<http://iranbirdrecords.ir/page/Iran%20Bird%20List>).

	Status (Kurdistan)	Dams			Preferred habitat	
		Vahdat dam	Shahid Kazemi dam	Gavoshan dam	Dam and river	Marginal wood land, farmland and hillsides
Greylag Goose <i>Anser anser</i>	W, P, S	*	*	*	*	
Whooper Swan <i>Cygnus cygnus</i>	W	*			*	
Common Shelduck <i>Tadorna tadorna</i>	W	*	*		*	
Ruddy Shelduck <i>Tadorna ferruginea</i>	W, P	*	*		*	
Gadwall <i>Anas strepera</i>	W	*	*	*	*	
Eurasian Wigeon <i>Anas penelope</i>	W	*			*	
Mallard <i>Anas platyrhynchos</i>	R, W, S	*	*	*	*	
Northern Shoveler <i>Anas clypeata</i>	W, P	*	*	*	*	
Garganey <i>Anas querquedula</i>	P	*	*	*	*	
Eurasian Teal <i>Anas crecca</i>	W, P	*	*	*	*	
Common Pochard <i>Aythya ferina</i>	W, P	*	*		*	
Ferruginous Duck <i>Aythya nyroca</i>	R	*	*		*	
Tufted Duck <i>Aythya fuligula</i>	W	*	*		*	
Smew <i>Mergellus albellus</i>	W	*	*		*	
Chukar Partridge <i>Alectoris chukar</i>	R	*	*	*		*
Little Grebe <i>Tachybaptus ruficollis</i>	R, W	*	*	*	*	
Great Crested Grebe <i>Podiceps cristatus</i>	S	*	*	*	*	
Greater Flamingo <i>Phoenicopterus roseus</i>	W, P	*	*		*	
White Stork <i>Ciconia ciconia</i>	S, s, P	*	*	*		*
Eurasian Spoonbill <i>Platalea leucorodia</i>	P	*	*		*	
Squacco Heron <i>Ardeola ralloides</i>	P	*	*		*	
Western Cattle Egret <i>Bubulcus ibis</i>	P	*	*	*	*	
Grey Heron <i>Ardea cinerea</i>	W, P	*	*	*	*	
Purple Heron <i>Ardea purpurea</i>	S, P	*	*	*	*	
Great Egret <i>Ardea alba</i>	W	*	*	*	*	
Little Egret <i>Egretta garzetta</i>	P, W, S	*	*	*	*	
Great White Pelican <i>Pelecanus onocrotalus</i>	W	*			*	
Great Cormorant <i>Phalacrocorax carbo</i>	W	*	*	*	*	
Western Osprey <i>Pandion haliaetus</i>	P			*		*
Eurasian Sparrowhawk <i>Accipiter nisus</i>	W	*	*	*		*
Western Marsh Harrier <i>Circus aeruginosus</i>	R, S			*		*
Common Buzzard <i>Buteo buteo</i>	W, P	*	*	*		*
Water Rail <i>Rallus aquaticus</i>	R, W, P	*	*	*	*	
Common Moorhen <i>Gallinula chloropus</i>	W, S, P	*	*	*	*	
Eurasian Coot <i>Fulica atra</i>	R, W, S, P	*	*	*	*	
Eurasian Stone-curlew <i>Burhinus oedicnemus</i>	S	*			*	
Black-winged Stilt <i>Himantopus himantopus</i>	S	*	*	*	*	

	Status (Kurdistan)	Dams			Preferred habitat	
		Vahdat dam	Shahid Kazemi dam	Gavoshan dam	Dam and river	Marginal wood land, farmland and hillsides
Pied Avocet <i>Recurvirostra avosetta</i>	S, P	*	*	*	*	
Northern Lapwing <i>Vanellus vanellus</i>	S, W, P	*	*	*		*
Little Ringed Plover <i>Charadrius dubius</i>	S	*	*	*	*	
Common Ringed Plover <i>Charadrius hiaticula</i>	P	*	*	*	*	
Common Snipe <i>Gallinago gallinago</i>	W, P	*	*	*	*	
Common Redshank <i>Tringa totanus</i>	W, S, P	*	*	*	*	
Common Greenshank <i>Tringa nebularia</i>	P, W	*	*	*	*	
Wood Sandpiper <i>Tringa glareola</i>	P	*	*	*	*	
Slender-billed Gull <i>Chroicocephalus genei</i>	W, P	*	*	*	*	
Black-headed Gull <i>Chroicocephalus ridibundus</i>	W, P	*	*	*	*	
Pallas's Gull <i>Ichthyaetus ichthyaetus</i>	W	*	*	*	*	
Caspian Gull <i>Larus cachinnans</i>	W	*	*		*	
Common Tern <i>Sterna hirundo</i>	P, S	*	*	*	*	
Black-bellied Sandgrouse <i>Pterocles orientalis</i>	R	*	*	*		*
Rock Dove <i>Columba livia</i>	R	*	*	*		*
Common Wood Pigeon <i>Columba palumbus</i>	S	*	*	*		*
European Turtle Dove <i>Streptopelia turtur</i>	S, P	*	*	*		*
Little Owl <i>Athene noctua</i>	R	*	*			*
Common Swift <i>Apus apus</i>	S	*	*			*
European Roller <i>Coracias garrulus</i>	S	*	*			*
European Bee-eater <i>Merops apiaster</i>	S, P	*	*			*
Eurasian Hoopoe <i>Upupa epops</i>	S, P	*	*			*
Middle Spotted Woodpecker <i>Dendrocopos medius</i>	R	*	*			*
Syrian Woodpecker <i>Dendrocopos syriacus</i>	R	*	*			*
Lesser Kestrel <i>Falco naumanni</i>	S	*				*
Common Kestrel <i>Falco tinnunculus</i>	R	*		*		*
Peregrine Falcon <i>Falco peregrinus</i>	P	*	*	*		*
Barbary Falcon <i>Falco pelegrinoides</i>	P		*	*		*
Eurasian Magpie <i>Pica pica</i>	R	*		*		*
Hooded Crow <i>Corvus cornix</i>	R	*		*		*
Crested Lark <i>Galerida cristata</i>	R	*	*	*		*
Sand Martin <i>Riparia riparia</i>	P, S	*	*	*	*	
Barn Swallow <i>Hirundo rustica</i>	S, P	*	*	*		*
Rosy Starling <i>Pastor roseus</i>	S, P	*		*		
Common Starling <i>Sturnus vulgaris</i>	R	*		*		*
House Sparrow <i>Passer domesticus</i>	R	*	*	*		*
Western Yellow Wagtail <i>Motacilla flava</i>	S	*	*	*		*
Grey Wagtail <i>Motacilla cinerea</i>	S, W	*	*	*		*
White Wagtail <i>Motacilla alba</i>	R, W	*	*	*		*
European Goldfinch <i>Carduelis carduelis</i>	S, W	*		*		*
Black-headed Bunting <i>Emberiza melanocephala</i>	S	*		*		*

cormorants and grebes. The high level of water entering this dam, and the presence of a considerable fish population (native and exotic) in this area (Esmaeili *et al* 2010) have created a suitable habitat for waterbirds.

Gavoshan dam

Fifty-six species were recorded. Two species are listed in Appendix I (Peregrine Falcon, Barbary Falcon) and five species in Appendix II of CITES (Western Osprey, Eurasian Sparrowhawk, Western Marsh Harrier, Common Buzzard, Common Kestrel). Fifty-four species (96.4%) are LC, one VU (European Turtle Dove) and one NT (Northern Lapwing) in the IUCN Red List. The fish fauna of Gavoshan dam is rich and taxonomically diverse (Ramin & Chehrzad 2008). This rich ichthyofauna and the riparian plant community provide food and shelter for many waterbirds.

DISCUSSION

Man-made waterbodies can act as new habitats for bird species and they are apparently good alternatives to natural wetlands and thus important for waterbird conservation (see Bellio *et al* 2009, Joolaei *et al* 2011, Zakaria & Rajpar 2013, Hamdi & Ismail-Hamdi 2014, Karakaş 2017). Numerous studies have provided checklists of waterbirds in Iran (*eg* Khaleghizadeh 2007b, Khalilipour *et al* 2007, Behrouzi-Rad 2009, Mansoori 2009, Tohidifar *et al* 2009, Tayefeh *et al* 2011, Tohidifar & Kaboli 2012, Tohidifar & Scott 2014) However, relatively few studies have been conducted on the avifauna of artificial waterbodies (*eg* Khaleghizadehi & Sehhatiasabet 2007, Nezami 2007, Scott 2007, Barati *et al* 2009, Joolaei *et al* 2011, Behrouzi-Rad & Maktabi 2015, Khani *et al* 2015).

Iran lies in a region of major zoogeographical interchange (Madjnoonian *et al* 2005, Roselaar & Aliabadian 2007, Coad 2017) and it serves as an important staging and wintering ground for many wetland birds (Nourani *et al* 2015). It is a country with 105 Important Bird Areas (IBAs) in the Middle East (Evans 1994, BirdLife International 2017) and has the highest richness of migratory species in the Middle East (Kirby *et al* 2008). The largest assembly of migratory waterbirds in Iran takes place at the south Caspian sea wetlands (Mansoori 2009), but many waterbirds are also found in suitable waterbodies across the country.

Zarivar wetland (Figure 1, Plates 4, 5) is the only natural wetland in Kurdistan province and supports a significant number of migratory waterbirds, native and rare species: 222 species including 131 terrestrial and 91 waterbirds, of which 11 of the 222 are considered as globally threatened species (3 VU and 8 NT) (Zarei *et al* 2017b). With strengthening of the drought at lake Urmia, in the north of Iran, it seems that the existence of Zarivar lake has significantly increased Zarivar's importance for staging and the wintering of migratory waterbirds of the African–Western Eurasian flyway (Zarei *et al* 2017, 2018).

With society's increasing water demands, numerous artificial waterbodies have been built in Kurdistan province, some for generating electricity, flood management and water storage and some for agriculture and aquaculture, including 34 major dams (nine operational, 11 under construction and 14 in the study stage) (IWPRMC; <http://daminfo.wrm.ir>).

The three artificial waterbodies studied in this research only support one-third (35%) of the total bird species recorded at Zarivar wetland. Zarivar supports a rich fauna and flora (see Zarei *et al* 2017) that is important for maintaining the biological and genetic diversity of the Iranian–Anatolian biogeographic province. Out of 66 breeding birds in the Zarivar wetland (Ahsani *et al* 2015), at least 34 (aquatic and semi-aquatic breeding species) are ecologically dependent on wetlands during the breeding season. The mid-



Plate 5. Land-use change and habitat destruction in the southern and southeastern parts of Zarivar wetland. © Fatah Zarei

winter waterbirds census data of Zarivar lake recorded 1550 Slender-billed Gulls in 1993 and 1500 Ruddy Shelducks in 1994, the number in each case exceeds 1% of the wintering population of their related flyway. Mansoori (1995) stated that Zarivar regularly supports over 1% of the regional population of Tufted Ducks. Zarivar harboured two breeding birds, Ferruginous Duck and Northern Lapwing (Zarei *et al* 2017), which are currently listed as NT in the IUCN Red List. Thus, though these man-made water sources do not have the functionality of natural wetlands (also see Tourenq *et al* 2001), they can reduce the effects of habitat loss and act as alternative habitats for birds (Karakas 2017).

This study and previous research (eg Khaleghizadehi & Sehhatisabet 2007, Nezami 2007, Scott 2007, Barati *et al* 2009, Joolaei *et al* 2011, Behrouzi-Rad & Maktabi 2015, Khani *et al* 2015) showed that artificial structures related to the water industry may be alternative feeding, staging and wintering grounds and can provide suitable habitats for many bird species. Some artificial waterbodies were included in the list of IBAs in Iran as they provide shelter, food and nest sites for significant numbers of bird species (eg Abbas-abad, Dez, Dorudzan, Lashgarak, Latian and Voshmigr dams; BirdLife International 2017). Therefore, beside the protection of natural wetlands, management of these dams is also important for conservation of bird species, especially waterbirds.

However as noted by Bellio *et al* (2009), artificial wetlands may perform some but not all the functions of natural wetlands. The negative ecological consequences of large dams are numerous, including direct impacts on biological, chemical and physical properties of rivers and riparian environments. Dams block fish migration (Liermann *et al* 2012), and in some cases completely separate spawning from rearing grounds or impede the function of these grounds by changing water depths, currents, and deposition patterns, leading to senescence prior to reproduction (Kruk & Penczak 2003, McLaughlin *et al* 2006). Another significant and obvious impact is the transformation upstream of the dam from a free-flowing river ecosystem to an artificial slack-water reservoir habitat (Nilsson *et al* 2005). Changes in temperature, chemical composition, dissolved oxygen levels and the physical properties of a reservoir are often not suitable to the aquatic plants and animals

that evolved with a given river system. Indeed, dams often host non-native and invasive species (eg snails, algae, crayfish and predatory fish) that further undermine the river's natural communities of plants and animals (Johnson *et al* 2008). Large dams have led to the extinction of many fish and other aquatic species, which leads to biotic homogenization (Rahel 2000, Poff *et al* 2007), the disappearance of birds in floodplains (Kingsford 2000), huge losses of forest, wetland and farmland, and many other unmitigable impacts. Therefore, it is better to manage and maintain natural wetlands.

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Pectoral Sandpiper *Calidris melanotos* in Makadi bay, Hurghada, Egypt, March 2018

OLOF JÖNSSON

During the last week of March 2018 I was on a family holiday in Hurghada, Egypt. Our choice of hotel in Makadi bay was partly based on the presence of a golf course in the outskirts of the hotel area, located at 26.982232° N, 33.880212° E. I visited the golf course a few early mornings before the golfers began to play. A group of c500 Spotted Sandgrouse *Pterocles senegallus* (Plate 1) gathered near the golf course every morning which gave a nice desert touch to the birding.

On the morning of 27 March 2018 I was taking pictures of Yellow Wagtails *Motacilla flava* at one of the ponds in the western part of the golf course, when suddenly a Pectoral Sandpiper *Calidris melanotos* was standing there on a rock looking at me. I took some photos of the bird (Plate 2) that soon flew to the other side of the pond, uttering its typical 'prrrt' call, before it landed and joined two Ruffs *Calidris pugnax*. I suspected that it was a rare species in Egypt so I texted István Moldován who soon told me it was the third record for Egypt. I visited the golf course the following day, but couldn't relocate the bird despite checking all the ponds in the area.

Considering that many of the records of Pectoral Sandpiper in Europe (where it is also a vagrant, but a more common one) consist of birds of Arctic origin it's not very surprising that a few are seen in the Middle East as well. This record was the third for Egypt and was accepted by the Egyptian ornithological rarities committee, following one in Wadi el Natrun 14 May 1990 and one Abassa fish ponds 5 May 2012 (Jiguet *et al* 2014). There were 12 records of Pectoral Sandpiper between 1983 and 2014 in Israel (Tarsiger 2018).

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Olof Jönsson, Sweden. olof.joensson@gmail.com



Plate 1. Spotted Sandgrouse *Pterocles senegallus* Hurghada, Egypt, March 2018. © Olof Jönsson



Plate 2. Pectoral Sandpiper *Calidris melanotos* Makadi bay, Hurghada, Egypt, 27 March 2018. © Olof Jönsson

FROM THE RARITIES COMMITTEES

Ian Harrison (compiler)

Observers who have had a country first record accepted by a rarities committee are encouraged to write it up as a note or paper for publication.

CYPRUS

The Cyprus Rare Birds Committee comprises Jane Stylianou (chair), Melis Charalambides, Stavros Christodoulides, Chris Stavrou, Martin Hellicar, Johannes Honold, Filippos Georgiades. A full list of Cyprus birds requiring rarity descriptions and rare bird report forms are available from Jane Stylianou janestycy@yahoo.co.uk to whom claims should be sent. The committee has accepted the following records since the report in *Sandgrouse* 40(2)

Pacific Golden Plover *Pluvialis fulva*. One juvenile Larnaca sewage treatment plant 9 September 2017 (A Kyriacou). Tenth record.

White-eyed Gull *Larus leucophthalmus*. One Larnaca airport coast 23 June 2017 (J Stylianou, Plate 1). First record.



Plate 1. White-eyed Gull *Larus leucophthalmus* 23 June 2017, Larnaca airport coast, Cyprus. © J Stylianou

Montagu's Harrier *Circus pygargus*. One juvenile Lady's Mile 7 December 2017 (V Tjernberg). Latest date for this species.

Turkestan Shrike *Lanius [isabellinus] phoenicuroides*. One immature Asprokremmos dam 18 September 2017 (A Crane). Rare, less than annual passage migrant.

Bar-tailed Lark *Ammomanes cinctura*. One Larnaca STP 24 April 2017 (M Charalambides & group). Seventh record.

'Western Siberian Stonechat' *Saxicola maurus maurus*. One Mandria (Paphos) 6 April 2017 (M Hodgson). Rare, less than annual passage migrant.

Common Rosefinch *Carpodacus erythrinus*. One Livera (Sadrazamköy) 18 May 2017 (V Vasiliou, G Konstantinou). 13th record.

Desert Finch *Rhodospiza obsoleta*. One cape Greco 20 April 2017 (E Roualet) and two there 30 April 2017 (N Antcliff). Second and third records.

Pine Bunting *Emberiza leucocephalos*. One Livadi tou Pashia (Troodos) 24 March 2017 (M Smith). 14th record.

EGYPT

The Egyptian Ornithological Rarities Committee comprises Sherif Baha El Din (chair), Pierre André Crochet (vice-chair), Frédéric Jiguet (secretary), Lukasz Lawicki (joint secretary), Wed Abdel Latif Ibrahim, Richard Bonser, Andrea Corso, Andrew Grieve, Richard Hoath and Manuel Schweizer. Claims should be sent to eorc.secretary@gmail.com. See also <http://www.chn-france.org/eorc/eorc.php> where claim forms can be downloaded.

IRAN

The Iran Bird Records Committee comprises Abolghasem Khaleghizadeh (recorder), Mohammad Tohidifar, Ali Adhami-Mirhosseini, Seyed Babak Musavi, Meysam Ghasemi, Ramezanali Ghaemi, Ali Sangchooli, Mohammad Safrang, Parviz Bakhtiari, Mohammad E Sehhatiasabet,

Abbas Ashoori, Alireza Hashemi and Ahmad Barati plus Derek Scott, Magnus Ullman, Raffael Ayé, Ian Harrison, Mike Blair and Richard Porter as external consultants when necessary. Claims should be sent to Abolghasem Khaleghizadeh: akhaleghizadeh@gmail.com.

ISRAEL

The Israel Rarities and Distribution Committee comprises Avner Cohen (Secretary), Barak Granit, Yosef Kiat, Yoav Perlman. Claims should be sent to Avner Cohen israbirding@gmail.com. See also www.israbirding.com/irdc where claim forms can be downloaded.

JORDAN

The Jordan Bird Records Committee comprises Fares Khoury (secretary), Feras Rahahleh, Richard Porter and Ian Andrews. Claims should be sent to Fares Khoury at avijordan2000@yahoo.com. See also: <http://www.jordanbirdwatch.com/jbrc.html>. JBRC has accepted the following records since the report in *Sandgrouse* 40(1).

Lesser White-fronted Goose *Anser erythropus*.

One Aqaba Bird Observatory, first seen 20 February 2018 remaining to 19 November 2018 (Feras Rahahleh, Plate 2). Third record. (This bird moved between Aqaba and Eilat.)

Crested Honey Buzzard *Pernis ptilorhyncus*.

An adult female Aqaba BO 5 May 2018 (Fares Khoury). Fourth record, previous records also from Aqaba.

Red Avadavat *Amandava amandava*. One near the international airport, east of Madaba, April 2017 and April 2018, seen on several occasions (Fares Khoury). First record, considered an escape.

The following claims were rejected: Eleonora's Falcon *Falco eleonora*. Al-Hafayer area, Aqaba, 8 April 2018, Tala bay, Aqaba, 9 April 2018. Crested Honey Buzzard *Pernis ptilorhyncus*, one immature male (2cy), Aqaba BO, 11 March 2018, three adults (2m, 1f) there, 10 April 2018.

KUWAIT

The Kuwait Ornithological Rarities Committee comprises Neil Tovey (chair), AbdulRahman Al-Sirhan (secretary), Markus Craig, Mike Pope, Humoud



Plate 2. Lesser White-fronted Goose *Anser erythropus* 30 October 2018, Aqaba BO, Jordan. © Feras Rahahleh



Plate 3. Dalmatian Pelican *Pelecanus crispus* 18 October 2018 Boubyan island, Kuwait. © Abdulaziz Al Yousef

Al-Shayji and Omar Al Shaheen. Oscar Campbell and Peter Kennerley are both external adjudicators with voting rights. Claims should be sent to the secretary at alsirhan@alsirhan.com or the chair at neiltovey@gmail.com. KORC has accepted the following records since the report in *Sandgrouse* 40 (2).

Corrigendum: In the Kuwait entry in *Sandgrouse* 40 (2) 2018 the scientific name of Grey-throated Martin (p192) should be *Riparia chinensis*

Sooty Shearwater *Ardenna grisea*. One en route from Kubbar island, 18 May 2018 (B Jummaa, S Raju). Fifth record.

Jouanin's Petrel *Bulweria fallax*. One Jahra Pools reserve 12 May 2018 (M Craig, M Pope). First record.

Lesser Flamingo *Phoeniconaias minor*. One Sulaibakhat bay, 2 February 2012 (M Bally, J Mazenauer). Third record.

Striated Heron *Butorides striata*. One JPR, 7 July 2018 (P Choudhary). Sixth record.

Dalmatian Pelican *Pelecanus crispus*. All Boubyan island: three 9 May 2017 (J Al Ajmi), one 23 March 2018 (K Nasrallah), two 18 October 2018 (A Al Yousef, Plate 3). Ninth–eleventh records.

Lesser Spotted Eagle *Clanga pomarina*. One Khuwaisat, 17 September 2018 (O Al Shaheen). Fourth record.

Golden Eagle *Aquila chrysaetos*. One Sabah A Ahmad natural reserve 26 September 2018 (O Al Shaheen). Twelfth record.

Spur-winged Lapwing *Vanellus spinosus*. One Jahra East outfall 2 March 2016 (O Al Omar). Fifteenth record.

Great Knot *Calidris tenuirostris*. One JEO, 23 December 2015 (A A Sirhan). One JPR, 24 June 2018 (O Al Shaheen). Sixth–seventh records.

Red Knot *Calidris canutus* One JPR 13 May 2018 (O Al Shaheen). Seventh record.

Eurasian Woodcock *Scolopax rusticola*. One Al Shalla farm, 24 November 2006 (G Gregory *et al*), one JPR, 16 December 2015 (A Ragab). Eighth–ninth records.

Great Snipe *Gallinago media*. One JPR, 24 September 2018 (N Tovey). Fifteenth record.

Grey Phalarope *Phalaropus fulicarius*. One JPR, 4 July 2018 (Omar Al Shaheen). Tenth record.

White-eyed Gull *Ichthyophaga leucophthalmus*. One JPR, 22 May 2018 (O Al Shaheen). First record.

Arctic Tern *Sterna paradisaea*. One JPR, 13 June 2018 (Omar Al Shaheen). Ninth record.

Rufous Turtle Dove *Streptopelia (orientalis) meena*. Two JPR, 15 October 2018 (O Al Shaheen). One Pivot fields, 13 November 2018 (N Tovey, M Dettori *et al*). 15th–16th records.

Amur Falcon *Falco amurensis*. One JPR, 9 May 2018 (L Ashor). Third record.

Eleonora's Falcon *Falco eleonora*. One JPR, 15 June 2018 (B Jummaa). First record.

Long-tailed Shrike *Lanius schach*. One JPR, 16 July 2018 (O Al Shaheen). Third record.

'Arabian Grey Shrike' *Lanius (excubitor) aucheri*. One Kabd reserve, 1 May 2018 (R Al Hajji). One Pivot fields, 3 November 2018 (M Pope). Fourth–fifth records.

Calandra Lark *Melanocorypha calandra*. Three Dairy Farm pivot fields 24 November 2018 (K Webb, M Ahmed, M Pope). Fourth record.

Hume's Leaf Warbler *Phylloscopus humei* Two Al Abraq 4 November 2018 (O Al Shaheen). One Jahra farms 3 December 2018 (G Jenniskens). 11th–12th records.

Paddyfield Warbler *Acrocephalus agricola*. One Mutla'a ranch 4 August 2018 (M Pope, N Tovey). One JPR 24 October 2018 (O Al Shaheen). Fifth–sixth records.

Green Warbler *Phylloscopus nitidus*. One Mutla'a ranch 15 September 2016 (M Craig, N Tovey), one there 16 September 2017 (N Tovey, B Jummaa), one Pivot

fields, 20 August 2018 (N Tovey, M Pope), one JPR, 28 August 2018 (H Boerseli), one Mutla'a ranch 6 October 2018 (M Pope, P Scott). 12th–16th records.

Booted Warbler *Iduna caligata*. One JEO 1 September 2015 (R Al Hajji), one there, 24 August 2018 (R Al Hajji), one SAANR 30 August 2018 (O Al Shaheen). Fifth–seventh records.

Taiga Flycatcher *Ficedula albicilla*. One Al Abraç 19 May 2018 (M Craig, M Pope). Fifth record.

Eversmann's Redstart *Phoenicurus erythronotus*. One Al Abraç 4 November 2018 (O Al Shaheen), one Green island 25 November 2018 (K Webb, M Ahmed). 14th–15th records.

Pied Stonechat *Saxicola caprata*. One Jahra farms, 12 May 2018 (A Alawadhi). Second record.

LEBANON

The Lebanon Bird Records Committee comprises Ghassan Ramadan Jaradi (executive director & recorder), Georges Tohme, Gaby Khalaf, John Waterburry and Ryad Sadq. Claims should be sent to Ghassan Ramadan Jaradi grjaradi@hotmail.com from whom claim forms can be obtained.

LBRC has accepted the following record:

Black-eared Kite *Milvus (migrans) lineatus*. One Kfar-habou area, northern Lebanon, 7 November 2017 (M Sawwan). First record.

OMAN

The Oman Bird Records Committee comprises Jens Eriksen (recorder), Ian Harrison, Dave Sargeant, Graham Searle, John Atkins, Peter Cowan, Waheed Al Fazari, Zahran Al Abdulasalam and Manal Al Kindi. Claims should be sent to Jens Eriksen hjoman@gmail.com from whom claim forms can be obtained. OBRC has accepted the following records since the report in *Sandgrouse* 40(1).

Black-legged Kittiwake *Rissa tridactyla*. Adult Shannah (Barr Al Hikman) 6 November 2018 (D Fisher). Fourth record.

Brown-headed Gull *Chroicocephalus brunnicephalus*. First winter Raysut 24 November 2018 (T Holmgren). Second record.

Tambourine Dove *Turtur tympanistria*. One Ayn Sahnawt 11 April 2016 (R Tovey). First record, probable escape.



Plate 4. Pied Crow *Corvus albus* 21 November 2018, Al Ajaiz, Oman. © K de Jager



Plate 5. Streak-throated Swallow *Petrochelidon fluvicola* 15 November 2017, Raysut lagoons, Oman. © Mathias Ullman

Common Hawk-Cuckoo *Hierococcyx varius*. One adult Wadi Ash Shuwaymiyyah, 11 December 2017 (L Freeland-Haynes, A White). Fourth record.

Pied Crow *Corvus albus*. One Masirah island resort, 3 October–30 November 2018 (D Pinto), one Al Ajaiz, 21 November 2018 (K de Jager & S Bot, Plate 4). First and second records.

Streak-throated Swallow *Petrochelidon fluvicola*. One Raysut lagoons, 15 November 2017 (M Ullman, J Fagefors, Plate 5). Eighth record.

Zebra Finch *Taeniopygia guttata*. Five Ayn Sahnawt 10 April 2016 (R Tovey). First record, considered escape.

Pin-tailed Whydah *Vidua macroura*. Three Riyam park (Muscat) 19 May–2 June 2018 (B Panikkaserry). First record, considered escape.

Cretzschmar's Bunting *Emberiza caesia*. One Mudday (Dhofar) 19 February 2016 (R Tovey). Fifth record.

QATAR

The Qatar Bird Records Committee comprises Neil Morris (secretary), Richard Porter (honorary president) and Gavin Farnell (recorder). Claims should be sent to gavinfarnell@yahoo.co.uk.

QBRC has accepted the following records since the last report in *Sandgrouse* 40(1).

Black-winged Kite *Elanus caeruleus*. One Irkayya farm 25 September–2 December 2018 (S Odeh, Sh Mohammed). Tenth record.

European Honey Buzzard *Pernis apivorus*. One Al Shamal park 21 September 2018 (G Farnell). Sixth record.

Crested Honey Buzzard *Pernis ptilorhynchus*. One Al Shamal park 19 November 2018 (S Abdullah). Fifth record.

Short-toed Snake Eagle *Circaetus gallicus*. One Al Wakra 4 October 2018 (J van Duffelen), one IF 2 November 2018 (S Sanders), one IF 17 December 2018 (Z AbdulRahman). 24th–26th records.

'Northern Shikra' *Accipiter (badius) cenchroides*. A 1st CY bird Al Shamal park 3 August–7 September 2018 (G Farnell, D Antithad). Second record.

Long-legged Buzzard *Buteo [rufinus] rufinus*. One IF 30 November 2018 (G Farnell). 33rd record.

Sociable Lapwing *Vanellus gregarius*. Three IF 15 October 2018 (J van Duffelen). 11th record.

White-tailed Lapwing *Vanellus leucurus*. One IF 15 September 2018 (F Ilias). 18th record.

Caspian Plover *Anarhynchus asiaticus*. One IF 17 November 2018 (G Farnell). 18th record.

Little Swift *Apus affinis*. Four Umm Salal Muhammed 1–4 May (Anton Lombard). Third record.

Pied Kingfisher *Ceryle rudis*. Two IF lagoons, 21 December 2018 (K Nair). 14th record.

Amur Falcon *Falco amurensis*. A 1st CY bird IF, 25 May 2018 (D Sanders). Sixth record.

Calandra Lark *Melanocorypha calandra*. 20 birds IF 9 February 2018 (J van Duffelen, G Farnell, J Hardacre). First record.

European Robin *Erithacus rubecula*. One IF 18 November 2018 (S Abdullah). Sixth record.

Thrush Nightingale *Luscinia luscinia*. One IF 25 October 2018 (A Saleem). 16th record.

Semi-collared Flycatcher *Ficedula semitorquata*. One Al Shamal park 19–20 October 2018 (S Abdullah, G Farnell). 15th record.

Finsch's Wheatear *Oenanthe finschii*. One IF 10 November 2018 (G Farnell, S Abdullah). Fourth record.

Yellow-throated Sparrow *Gymnoris xanthocollis*. One Abu Dalouf park, Al Shamal, 20 October 2018 (G Farnell). Tenth record.

Striolated Bunting *Emberiza striolata*. One IF 15 October 2018 (J van Duffelen), four IF 11 November 2018 (Sh Mohammed), one IF 20 November 2018 (R Rayman). Fourth–sixth records.

Black-headed Bunting *Emberiza melanocephala*. An adult male Al Shamal park, 6 April 2018 (G Farnell). Sixth record.



Plate 6. Red-flanked Bluetail *Tarsiger cyanurus* 28 October 2018 Kozanlı, Konya, Turkey. © Hüseyin Buğday

TURKEY

The Turkish Bird Records Committee comprises Kerem Ali Boyla (secretary), Kiraz Erciyas, Korhan Özkan, Kuzey Cem Kulaçoğlu, Mustafa Erturhan, Nizamettin Yavuz, Ömral Ünsal Özkoç and Ali Atahan (observer). Claims should be entered as a sighting at ebird.org. More information can be found at www.kustr.org/kuskayitkomitesi. TBRC has accepted the following records.

Red-flanked Bluetail *Tarsiger cyanurus*. One 22 December 2001 Istanbul (Graham B Langley), one lake Kozanlı (Konya) 28 October 2018 (Hüseyin Buğday, Plate 6). First and second records.

UNITED ARAB EMIRATES

The Emirates Bird Records Committee comprises Oscar Campbell (chair), Mark Smiles (secretary), Simon Lloyd, Huw Roberts and Neil Tovey (all voting members) plus Tommy Pedersen (UAE bird recorder), Ahmed al Ali, Peter Hellyer and Jacky Judas (all non-voting members). Records are circulated and assessments published three times per year, as according to the timetable outlined at www.uaebirding.com/ebrc.html. Decisions on assessments, plus the EBRC's constitution and information about the assessment process and downloadable report forms are all available at the same location. The UAE Bird Checklist, in both

short and annotated forms, is also available at www.uaebirding.com/uaechecklist.html, along with recently published annual reports for 2010–2015. The annotated checklist was updated extensively in July 2016 with category definitions adjusted, categorisation of a number of species altered, and a number of records of certain species reviewed. Claims, preferably on downloaded report forms should be sent to ebrcuae@gmail.com or to Tommy Pedersen (tommypepe63@gmail.com). EBRC has accepted the following records since the report in *Sandgrouse* 40(2).

Leach's Storm Petrel *Hydrobates leucorhoa*. One during a pelagic trip off Khor Kalba 25 May 2018 (M Smiles, O Campbell, A Alzaabi *et al*). First live record (one specimen from 1969).

Great White Pelican *Pelecanus onocrotalus*. One immature (possibly two) Al Wathba wetland reserve 8 March 2018 (S Khan, S Ahmed, E Al Hammadi). 11th record. Previous record February 2018.

Eastern Cattle Egret *Bubulcus coromandus*. One Markaniyah farm 23 April 2018 (H Roberts, Plate 7). Seventh record; almost annual since first record in 2009.



Plate 7. Eastern Cattle Egret *Bubulcus coromandus* 23 April 2018, Markaniyah farm, Al Ain, Abu Dhabi. © H Roberts



Plate 8. European Honey Buzzard *Pernis apivorus* 26 May 2018, Mushrif Palace gardens, Abu Dhabi. © S Lloyd



Plate 10. Red-footed Falcon *Falco vespertinus* 22 April 2018, Saih Al Salam oasis lakes, Dubai. © T Pedersen

European Honey Buzzard *Pernis apivorus*. One Mushrif Palace gardens 26 May 2018 (S Lloyd, Plate 8). 17th record, last 2016.

Griffon Vulture *Gyps fulvus*. One (or two) Jebel Hafit and nearby area, 23 April 2018 (N Williams *et al*). 16th record, last 2017.

Red-knobbed Coot *Fulica cristata*. One exhausted Saadiyat golf club 27 April 2018, found dead the next day (S Lloyd, Plate 9) and one adult Hatta lake 25 June 2018 (AV Bourbon). Second and third records, last 2002–2004.

Spotted Sandgrouse *Pterocles senegallus*. One A Sila'a peninsula 16 March 2018 (O Campbell, S Lloyd, M Smiles, T Lloyd). Sixth record, last 2009.



Plate 11. Red-footed Falcon *Falco vespertinus* 22 April 2018, Saih Al Salam oasis lakes, Dubai. © T Pedersen

Red-footed Falcon *Falco vespertinus*. One female Saih al Salam oasis lakes 22 April 2018 (M Iliff, T Pedersen, Plates 10,11). Third record, last 2006.



Plate 9. Red-knobbed Coot *Fulica cristata* 27 April 2018, Saadiyat golf club, Abu Dhabi. © S Lloyd



Plate 12. Green Warbler *Phylloscopus nitidus* 21 April 2018, Safa park, Dubai. © F Itani

Icterine Warbler *Hippolais icterina*. One Al Mamzar park 21 April 2018 (M Smiles). 15th record, last 2010.

Green Warbler *Phylloscopus nitidus*. One Safa park 21 Apr 2018 (F Itani, Plate 12). 20th record, last 2017.

'Mesopotamian Crow' *Corvus (cornix) capellanus*. One Umm Al Quwain Flamingo beach resort 16 March 2018 (S Taylor). Third record, last 2015.

ACKNOWLEDGEMENTS

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LETTER FROM THE CHAIRMAN

OSME in 2018

The year 2018 was a hugely significant one for OSME as we celebrated our 50th anniversary. In 1968, The Ornithological Society of Turkey (OST) was launched, and in 1978 its geographical remit expanded and became the Ornithological Society of the Middle East, with the addition of The Caucasus and Central Asia in 2001. During the year we celebrated this milestone in a number of ways. We produced a special *Sandgrouse* Supplement to showcase the history and diversity of this fascinating region, as well as a special edition *Pocket Checklist* (Plate 1). Both publications went down very well with members and non-members alike and we were delighted to get lots of positive feedback.

A key project for us over the last few years has been the production of an Arabic version of the *Field Guide to the Birds of the Middle East*. This was a two stage process with the publication of the printed version in 2017 followed by the launch of a free-to-download smartphone App version during 2018 (Plates 2 & 3). In April 2018 we launched the Apple version of the App, and then by the end of the year we were in the final testing phase of the Android version, which was subsequently released in January 2019. Making the App version free to download was a key requirement of OSME Council as we really want to see this used to grow interest in birds and their conservation across the Middle East. The number of downloads has now reached several thousand and our aim is to reach at least 10 000 by the end of 2019. To turn the project into a reality has been a huge team effort. Bloomsbury, under the guidance of Jim Martin, provided a huge amount of support and encouragement, especially in the production of the Arabic-language printed version. The artists John Gale, Mike Langman and Brian Small gave us permission to use the original plates in the Arabic versions. The production of the printed Arabic version was jointly supported by BirdLife International, RSPB and OSME, and significant funding was received from Avifauna, British Birds and the Hima Fund. The original English text



Plate 1. *Sandgrouse* Supplement 4 and the OSME *Pocket Checklist*, produced in 2018.



Plate 2. Home page of free-to-download Arabic-language App version of *Field Guide to the Birds of the Middle East*.



Plate 3. Page from free-to-download Arabic-language App version of *Field Guide to the Birds of the Middle East*.

was translated by Abdulrahman Al-Sirhan Alenezi with editorial support from Ibrahim Khader, Sharif Jbour, Nabegh Ghazal Asswad

and Akram Darwish. The production of the Apple and Android versions was expertly overseen by Fiona Barclay and the team at NatureGuides. The App version received considerable financial support from the HSBC Middle East Community Fund, British Birds Charitable Trust, Rockjumper Worldwide Birding Adventures, Bird Holidays, Chris Spooner and David Lindo (The Urban Birder), as well as donations from many OSME members and supporters in the Middle East and across the world. It was particularly fitting to receive a significant donation from Sylvia and Jack Aspinall in memory of their son Simon, who jointly authored the original field guide with Richard Porter. Richard of course, was an inspiration throughout the project, offering advice and support from the earliest discussions, and expert input from start to finish. It was a truly collaborative project.

An assessment of the extent of illegal bird killing in the Arabian Peninsula, Iran and Iraq has been a major project for OSME working jointly with BirdLife International. During 2018 we reached the final stages of the project and a scientific research paper is due to be published in an upcoming issue of *Sandgrouse*. A presentation of the preliminary results was given at the Global Flyways Summit held in the UAE in April, this was followed by a workshop where a number of ideas were put forward to help tackle illegal bird killing. This has been a challenging project and involved numerous stakeholders, government agencies and OSME members. We hope that the results will set a baseline against which future conservation efforts can be assessed, but also to act as a catalyst for future initiatives to combat illegal killing in the region.

In November, OSME Council member, Tomas Haraldsson, was appointed our first Youth Development Officer to build on the 'bird camp' initiative that he has been instrumental in trialling in recent years. Developing the bird-watchers of tomorrow and inspiring the next generation about bird conservation is becoming a key focus for OSME. There were two main activities during 2018:

At Besh Barmag, Azerbaijan, a complete autumn (1 September–7 December) of migration counts was organized and can be partly considered as an extension to the bird camps that were held at that site in 2016–2017.



Plate 4. Participants at the Lebanon Bird Camp.

Nature Friends Azerbaijan, a local NGO, was instrumental in organising the camp and identifying participants. OSME co-funded the Besh Barmag bird camp and also invited four of the most active young Azeris to become OSME Supported Members. Two of the supported members have contributed guest blogs for the OSME website and are well worth a read.

At Ras al-Maten, Lebanon, Tomas helped arrange the first Bird Camp (Plate 4) outside Azerbaijan. During 1–4 October Swedish and Lebanese youths undertook a series of activities including bird migration studies, bird ringing and seminars. This bird camp was supported by the local BirdLife partner, SPNL, and we are already working on arrangements for follow up camps in Lebanon. OSME co-funded the camp through the Conservation Fund. A guest blog on the Lebanon bird camp can be found on our website.

The Conservation Fund which is OSME's small grants programme saw a record level of expenditure during 2018, with a wide-range of projects supported as follows:

- Sociable Lapwing protection and awareness raising at Talimarzhan, Uzbekistan: £2000
- Bird surveys of the Bamyan plateau, Afghanistan: £1000
- Status of scavenger birds, Kyrgyzstan: £2222
- Birds of the Anatolian Sweetgum forests, Turkey: £1000
- Status of the Syrian Serin in Syria: £1900
- Supporting Vulture Awareness Day on Socotra, Yemen: £500
- Developing a bird migration camp in Lebanon: £1750



Plate 5. Participants at the OSME Summer Meeting, Thetford, UK.

- The Besh Barmag bird migration camp, Azerbaijan: £2000
- A study of the Imperial Eagle in Turkey: £2000
- White-headed duck surveys in Armenia: £1977
- Monitoring Sociable Lapwings at Manych wetlands, SW Russia: £1000

The total amount allocated to the 11 projects was £17 349 compared to £15 792 in 2017, which is the 4th year in a row we've committed record levels of funding to projects across the OSME region. This continued growth would not have been possible without the direct support of the March Conservation Fund of the Tides Foundation, Avifauna Nature Tours and an anonymous donor. Thanks to OSME's independent Conservation Fund committee of Maxim Koshkin (Chairman), Richard Porter, Nabegh Ghazal Asswad, Sharif Jbour and Mick Green. They assess all applications and make recommendations to OSME Council for final approval.

Financially OSME had an exceptional 2018, our accounts are yet to be professionally reviewed before their presentation at our Summer Meeting at the end of June 2019, but there are some notable highlights:

- Our income exceeded ninety thousand pounds significantly ahead of any previous year.
- Our subscription revenue remained stable but donations and the consequential Gift Aid increased dramatically. This feels like a strong indicator of the

impact we are having with donors, funders and supporters who seem to be increasingly appreciative of our objectives, achievements and effectiveness.

- Expenditure was also at a record high with the full funding of the Birds of the Middle East App, a record Conservation Fund spend, the production of our Anniversary *Sandgrouse* and Checklist (Plate 1) and the investment of a considerably enhanced presence at Birdfair.

We ended the year with reserves and commitments in place that will allow this pace of development to continue with a planned further record conservation spend in 2019 and other exciting developments to further benefit the birds of the OSME Region.

Our Summer Meeting (Plate 5) and AGM were again held at the BTO Headquarters in Thetford, and Richard Porter opened proceedings with a fascinating overview of the history of OSME, right from the very first meetings of the OST up to the modern day. Georgia Locock then gave a very personal perspective on the issue of illegal bird killing in Cyprus. Conservation in the Iraq Marshes by Nadheer Fazaa and an illustrated talk on birdwatching in Iran by Steve Rooke made for a hugely informative series of talks. At the Summer Meeting, to recognise Richard Porter's massive contribution to both OSME and ornithology in the Middle East, Council announced that he would be the Society's second Honorary Life Fellow. You can hear more from Richard and other attendees of the Summer Meeting thanks to a wonderful

series of short interviews captured by Charlie Moores via a Sound Approach podcast (episode 19 at <https://soundapproach.co.uk/podcast/>).

We marked our 50th anniversary year at the UK Birdfair with a new modern stand design with a focus on displaying the smartphone App version of the *Arabic Field Guide to the Birds of the Middle East*. The expanded stand was a great success and we held two well attended cake cutting ceremonies on the Saturday and Sunday with Chris Packham and David Lindo. This was a great opportunity to share some of our ongoing projects that had been the target for the 50th Anniversary namely the smartphone App and the review of illegal bird killing in the Arabian Peninsula, Iran and Iraq. Feedback from OSME members and visitors to our Birdfair stand was overwhelmingly positive and Council recently decided to continue with the new design at 2019 Birdfair.

During 2018 OSME continued to steadily grow our social media presence with more than 4000 followers on Twitter and almost 2000 likes on our Facebook page. We've been actively promoting bird watching and conservation across the region through regular blogs on our website. Richard Porter has been co-ordinating contributions through regular guest blogs. We also tried several articles that had both English and local language versions; these were particularly successful and helped reach new audiences. Offers of guest blogs are always welcome so please contact us if you would like to discuss a possible contribution.

All members receive two issues of *Sandgrouse* each year and Volume 40 (2018) saw the continued publication of our highly regarded journal. Peter Cowan, the Editorial team, Eng-Li Green and Swallowtail Print do a fabulous job in producing *Sandgrouse* which is reflected in the numerous positive comments I receive about the journal.

Some thoughts on OSME in 2019

A key objective for 2019 will be to continue to grow our small grants programme and deliver another record level of expenditure through our Conservation Fund. The threats to birds and their habitats are not going

away and OSME is determined to do all it can to support research and conservation projects across the region. This year we'll be announcing a new and exciting fund that will be specifically aimed at those bird species that are categorised as globally threatened by IUCN/BirdLife International.

Our focus on youth development and education will continue to grow throughout the year, spearheaded by Tomas Haraldsson. A number of new initiatives are in the pipeline that we hope to announce in the coming months.

OSME are considering the development of a digital version of *Sandgrouse* that will be available to members as an additional benefit or an alternative to receiving a paper copy of the journal. A trial issue will be produced during the year before we take a decision on whether this would be a standard part of OSME membership.

The final results of the assessment of illegal bird killing in the Arabian Peninsula, Iraq and Iran will be published imminently as a special on-line *Sandgrouse* manuscript. A key challenge for OSME, working with BirdLife International and many other organisations and individuals, is how we can make a positive difference and see a much needed reduction in the number of birds illegally killed. Such change will be a long term process and we see opportunities to join up the various strands of OSME's work – the free-to-download Arabic App of Birds of the Middle East, an increased focus on youth development and education, and our small grants programme, all have a positive role to play in tackling illegal bird killing.

Finally on behalf of OSME Council, a huge thanks to all OSME members and supporters who continue to contribute to the work of OSME in numerous ways. If you have any comments on the work of OSME then please feel free to contact me by email via chairman@osme.org.

Dr Rob Sheldon, Chairman, OSME

AROUND THE REGION

Ian Harrison (compiler)

Records in *Around the Region* are published for interest only; their inclusion does not imply acceptance by the records committee of the relevant country. All records refer to 2018 unless stated otherwise. Records and photographs for *Sandgrouse* 41(2) should be sent by 10 June 2019 to atr@osme.org or ianbirds@gmail.com..

AZERBAIJAN

Breeding bird survey (west of the country 4 April–28 June 2018) results follow. First breeding record in 130 years **Eurasian Oystercatcher** *Haematopus (o.) ostralegus* Kura river, Qarayazi state reserve on Georgian border 5 Jun. First breeding records **Armenian Gull** *Larus armenicus* 17 May (several locations Mingechevir reservoir and colonies found on islands in Semkir reservoir; significant addition to world population). First breeding record **Namaqua Dove** *Oena capensis* 21 May near Cayli. Several new sites of breeding **Eastern Orphean Warblers** *Sylvia [hortensis] crassirostris* (main strongholds Turyancay state reserve and mountains on border close to Vashlovani national park, Georgia).

An international team monitored migration at Besh Barmag bottleneck 1 Sep–7 Dec and counted 2.86 million migrating birds. Day-count highlights follow. Four **Red-breasted Geese** *Branta ruficollis* 24 Nov; 27 851 **Garganeys** *Spatula querquedula* 2 Sep; 14 153

Eurasian Teals *Anas crecca* 13 Nov; two **Velvet Scoters** *Melanitta fusca* flying north 30 Nov; a **Common Scoter** *M. nigra* (first live record) 15 Nov. Two **Long-tailed Ducks** *Clangula hyemalis* 1 Nov; 923 **Eurasian Spoonbills** *Platalea leucorodia* 24 Sep and 1440 30 Sep; 5910 **Pygmy Cormorants** *Microcarbo pygmeus* 18 Nov and 6754 19 Nov; 19 066 'Continental **Great Cormorants**' *Phalacrocorax (carbo) sinensis* 17 Nov. 1394 **Western Marsh Harriers** *Circus aeruginosus* 24 Nov. One **Macqueen's Bustard** *Chlamydotis macqueenii* 30 Oct and 8413 **Little Bustards** *Tetrax tetrax* 24 Nov. Two **Demoiselle Cranes** *Anthropoides virgo* 25 Sep; 1340 **Black-winged Pratincoles** *Glareola nordmanni* 15 Sep; 1885 16 Sep and 1790 on 19 Sep. One **Black-legged Kittiwake** *Rissa tridactyla* 30 Oct and five 13 Nov (seventh–eighth records); 19829 **Common Black-headed Gulls** *Chroicocephalus ridibundus* 17 Nov. 22 339 **Rooks** *Corvus frugilegus* 23 Oct; single **Oriental Skylarks** *Alauda gulgula* 6, 7, 12 and 20 Oct and single **White-winged Larks** A.



Plate I. Long-tailed Rosefinch *Carpodacus sibiricus* 22 November 2018, Besh Barmag, Azerbaijan. © Steve Klasan

leucoptera seen regularly 27 Oct–7 Dec. A **Pallas's Leaf Warbler** *Phylloscopus proregulus* 19–22 Oct (first record). 5698 **White Wagtails** *Motacilla alba* 6 Oct. A **Richard's Pipit** *Anthus richardi* 8 Oct and several **Siberian Buff-bellied Pipits** *A. (rubescens) japonicus* 12 Oct–24 Nov. First record **Long-tailed Rosefinch** *Carpodacus sibiricus* 22–24 Nov (Plate 1). One **Little Bunting** *Emberiza pusilla* 16 Oct.

Further records Azerbaijan. One 'Eastern' **Common Crane** *Grus g. lilfordi* Qarayazi state reserve (on Georgian border) 30 Apr. One pair **Great Spotted Cuckoos** *Clamator glandarius* mating Batabat, Nakhchivan autonomous republic, 11 May (second record). The fifth record of **Red-rumped Swallow** *Cecropis daurica* 28 May near Xizi.

CYPRUS

A single **Greater White-fronted Goose** *Anser albifrons* Asprokremmos dam 2 Nov to year-end while six arrived at Larnaca sewage treatment plant 7 Nov rising to eight by 12 Dec. 650 **Eurasian Teals** *Anas crecca* Mia Milia (Haspolat) sewage treatment plant 14 Oct. 72 **Common Pochards** *Aythya farina* Kapouti (Kalkanlı) reservoir 20 Oct (highest count this autumn, numbers of sp declining). 65 **Ferruginous Ducks** *A. nyroca* Kouklia (Kukla) wetlands 20 Dec. A probable hybrid **Tufted Duck** *A. fuligula* Larnaca STP 12–21 Nov while four non-hybrids there 12 Dec. Three **Red-breasted Mergansers** *Mergus serrator*

offshore Famagusta bay 16 Dec (Plate 2). A juv **White-headed Duck** *Oxyura leucocephala* Mia Milia (Haspolat) STP on several dates 3–21 Nov (Plate 3). Both **Scopoli's Calonectris diomedea** and **Yelkouan Shearwaters** *Puffinus yelkouan* reported migrating, mainly off north coast: high counts: 165 **Scopoli's** Agios Amvrosios (Esentepe) 13 Sep with 357 on 21 Oct and 29 **Yelkouans** there 12 Sep. A flock of **Shearwater** sp (1000) Platanissos (Balalan) 1 Oct. Up to two **Great Crested Grebes** *Podiceps cristatus* Larnaca STP 9 Jul–4 Sep (very unusual summer record) while singles were at Asprokremmos dam 14–25 Sep, Famagusta freshwater (Ayluga) lake 18–28 Sep, Mia Milia (Haspolat) 28 Sep, Kioneli (Gönyeli) dam 17 Oct, Akhna dam 11 Dec, Lady's Mile 12 Dec, Kouklia (Kukla) wetlands 20 Dec and up to



Plate 2. Red-breasted Merganser *Mergus serrator* 16 December 2018, Famagusta bay, Cyprus. © Huseyin Yorganci



Plate 3. White-headed Duck *Oxyura leucocephala* 15 November 2018, Mia Milia (Haspolat) sewage treatment plant, Cyprus. © Hasan Bağlar

three Asprokremmos dam 28 Nov–year end. 32 **Black-necked Grebes** *Podiceps nigricollis* Larnaca STP 19 Nov highest count this winter. Up to four **Black Storks** *Ciconia nigra* Akrotiri salt lake 4–12 Oct and one Kouklia (Paphos) 7 Dec. A flock of c60 **Western White Storks** *C. c. ciconia* Akrotiri 10–13 Aug and a maximum of three seen Akrotiri area, Larnaca STP, Oroklini marsh and Famagusta freshwater (Ayluga) lake 21 Sep–9 Nov. At least four in Famagusta area 24 Dec. At least 100 **Western Cattle Egrets** *Bubulcus ibis*, with some young still in nests, Athalassa dam (Nicosia) 7 Jul; this was the first year that this westward spreading species had bred at this location. One adult **Great White Pelican** *Pelecanus onocrotalus* Larnaca STP 18 Sep. 1st CY birds seen Akrotiri SL 20–21 Sep and 30 Oct–1 Nov, Oroklini marsh 2 Nov and Athalassa dam 26 Sep and 16 Oct. A long staying 1st CY at Akhna dam 23 Oct–20 Nov and up to four 1st CY birds moved between Athalassa dam and Mia Milia (Haspolat) STP 7 Oct–1 Dec.

Third record **Black-winged Kite** *Elanus caeruleus* Akrotiri marsh (Phasouri reedbeds) 18 Oct. A 1st CY **Egyptian Vulture** *Neophron percnopterus* seen from Mandria (Paphos) 19 Sep and an ad over Limni valley 20 Sep. During Sep and Oct a total of eight **Short-toed Snake Eagles** *Circaetus gallicus* reported Akrotiri SL, Akrotiri marsh (Phasouri reedbeds), Ha Potami and Mandria (Paphos) Mutluyaka;

one also Styloi (Mutluyaka) 10 Dec. Single **Lesser Spotted Eagles** *Clanga pomarina* Akrotiri SL 19 Sep and Mandria (Paphos) 8 Oct. Two **Booted Eagles** *Hieraetus pennata* Akrotiri SL 15 Sep, one Mavrokolymbos dam 8 Sep and two over Prodromi 27 Sep. One male **Levant Sparrowhawk** *Accipiter brevipes* Mandria (Paphos) 10 Oct and a juv Phasouri 13 Oct.

One **Corncrake** *Crex crex* Agia Varvara (Paphos) 9 Oct and one Vrysoulles 12–15 Oct. At least one juv **Baillon's Crake** *Zapornia pusilla* together with two adults Akrotiri SL 31 Jul and 4 Aug (first confirmed breeding since 1985). Two **Spotted Crakes** *Porzana porzana* Mia Milia (Haspolat) STP 9–19 Oct. Small groups of **Demoiselle Cranes** *Grus virgo* migrated over the island Aug–Sep, the first record being 90 heading south over Kalo Horio 19 Aug (seen 20 Aug Akrotiri SL) and ten Tala 15 Sep the last. Highest numbers 93 Akrotiri SL 24 Aug, 105 Marathounta, 125 Panagia tou Sinti (Paphos) 26 Aug and 50 Paphos harbour 31 Aug. **Common Crane** *G. grus* migration comparatively poor this autumn, largest flock 56 Rizokarpasos (Dipkarpaz) 8 Oct while 13 Karpasia 16 Oct, five Mia Milia (Haspolat) STP 23 Oct, seven Limnatis (Limassol) 27 Oct and eight Lady's Mile 5 Nov and a late two Akrotiri SL 28 Dec.

A **Eurasian Oystercatcher** *Haematopus ostralegus* briefly at Akrotiri SL 29 Oct (Plate 4)



Plate 4. Eurasian Oystercatcher *Haematopus ostralegus* 29 October 2018, Akrotiri salt lake, Cyprus. © Ian Bloomer



Plate 5. Common Hoopoe *Upupa epops* 15 December 2018, Sinta (Inönü), Cyprus. © Ertaç Cüneyt



Plate 6. Yellow-browed Warbler *Phylloscopus inornatus* 26 October 2018, Agia Varvara (Paphos), Cyprus. © Dave Walker

and probably the same bird at nearby Zapalos bay 31 Oct. Nine **Pied Avocets** *Recurvirostra avosetta* migrated across Polis Chrysochou bay 23 Aug, three Larnaca airport-pools-south 5 Dec and one Larnaca STP 12 Dec. 50 **Northern Lapwings** *Vanellus vanellus* Kouklia (Kukla) wetlands 9 Dec. 180 **Spur-winged Lapwings** *V. spinosus* Mia Milia (Haspolat) STP 25 Sep and 130 there 21 Oct. 456 **Eurasian Golden Plovers** *Pluvialis apricaria* Silver Beach, Famagusta, 22 Dec (a number not seen for some years). Four **Greater Sandpipers** *Anarhynchus leschenaultii* returned to Paphos headland 8 Jul and remained there to year-end; one Famagusta (Gülseren) wetland 18 Sep. A migrating **Whimbrel** *Numenius (p.) phaeopus* Polis Chrysochou bay 21 Aug and three there 31 Aug, two Vasilia (Karşıyaka) headland 1 Sep. The lone Whimbrel wintering Paphos headland for several years returned 2 Sep and seen to year-end. A **Bar-tailed Godwit** *Limosa lapponica* Akrotiri SL 4–6 Oct. **Sanderlings** *Calidris alba* seen Akrotiri SL 23 Jul, Kazivera (Gaziveran) 2 Oct, Akrotiri gravel pits 18 and 19 Oct and Lady's Mile 19 Oct. Single **Broad-billed Sandpipers** *C. falcinellus* Akrotiri SL on several dates 23 Jul–20 Aug and 3 Oct, and one Silver Beach, Famagusta, 7 Oct. 100 **Common Snipes** *Gallinago gallinago* Mia Milia (Haspolat) STP 25 Oct. One **Terek Sandpiper** *Xenus cinereus* Oroklini marsh 28 Aug–2 Sep (15th record since 2000) and a juv **Red-necked Phalarope** *Phalaropus lobatus* Larnaca STP 15–24 Sep.

A **Black-legged Kittiwake** *Rissa tridactyla* Karpasia (Karpaz) protected area 17 Oct. A **Great Black-headed Gull** *Larus ichthyaetus* Lady's Mile 19–24 Nov and 4 Dec with another Oroklini marsh 11 Dec moving to Larnaca STP the next day. Only one report of **Caspian Tern** *Hydroprogne caspia*: one offshore Geroskipou 4 Sep while a **Common Tern** *Sterna hirundo* Larnaca STP 7 Aug. Single **Black Terns** *Chlidonias niger* Akrotiri 23 Jul, Larnaca STP several dates 6 Aug–29 Sep, Mia Milia (Haspolat) STP 30 and 31 Aug, Akhna dam 6 Sep and Polis Chrysochou bay 8 Sep. Three **Arctic Skuas** *Stercorarius parasiticus* off Pomos 30 Oct and one Livera (Sadrazamköy) 24 Nov.

A **Western Stock Dove** *Columba oenas* Paphos STP 24–26 Oct and one shot Palaikythro (Balikesir) fields 18 Dec. A 1st CY **Rufous Turtle Dove** *Streptopelia (orientalis) meena* Akrotiri marsh (Phasouri reedbeds) 3 Oct (third record). One **Laughing Dove** *Spilopelia senegalensis* Potamos tou Kambou (Yedidalga) 28 Jun (continuing to spread). A **Short-eared Owl** *Asio flammeus* Kazivera (Gaziveran) 23 Oct. Two **Little Swifts** *Apus affinis* Zakaki marsh 25 Aug and up to four seen regularly Akrotiri marsh/Phasouri areas several dates 18 Sep–11 Oct. A female **Pied Kingfisher** *Ceryle rudis* Klirou dam 30 Jul–19 Aug and probably the same bird Strakka 20 Aug; a second bird Athalassa dam 10–12 Dec. Single **Common Hoopoes** *Upupa epops* Mia Milia (Haspolat) STP 21



Plate 7. Savi's Warbler *Locustella luscinioides* 2 September 2018, Palaikythro (Balikesir) pools, Cyprus. © Birtan Gökeri



Plate 8. Rose-coloured Starling *Pastor roseus* 16 August 2018, Mia Milia (Haspolat), Cyprus. © Sadik Azimli

Nov and Asprokremmos dam, Lakatameia (Lakadameya) and Sinta (*İnönü*, Plate 5) during December are probable overwintering individuals. Late records **Eurasian Wryneck** *Jynx torquilla* Arodes 15 Nov and another Larnaca SL 25 Nov. One breeding pair **Eurasian Hobbys** *Falco subbuteo* with two juvs Bellapais 22 Sep. One **Saker Falcon** *F. cherrug* heading south Asprokremmos dam 12 Sep and probably the same bird later that day at Phasouri; another seen Souni 30 Sep. A **Rose-ringed Parakeet** *Psittacula krameri* Kioneli (Gönyeli) roundabout 12 Nov.

December records **Red-backed Shrike** *Lanius collurio*: males at Kouklia (Paphos) 30 Nov–2 Dec and Polis reedbeds 7 Dec

and a juv Livera (Sadrazamköy) 21 Dec. One **'Steppe' Grey Shrike** *Lanius excubitor pallidirostris* Lara 9–10 Dec (18th record). A **Northern Raven** *Corvus corax* Mia Milia (Haspolat) STP 21 Oct and up to five seen away from their last remaining breeding site at Pentadactylos, Agios Sozomenos (Nicosia) 11–25 Dec. A **Bimaculated Lark** *Melanocorypha bimaculata* Mandria (Paphos) 6 Oct and at least one **Lesser Short-toed Lark** *Alaudala rufescens* Asprokremmos dam 2 Nov and cape Greco 9 Nov. An **Eastern Bonelli's Warbler** *Phylloscopus orientalis* Armou hills 30 Jul (uncommon on return migration). The 20th record of **Yellow-browed Warbler** *P. inornatus* Agia Varvara (Paphos) 25–26 Oct (Plate 6). Possible **Marsh Warblers** *Acrocephalus palustris* Agia Varvara (Paphos) 3 Oct and Paphos STP 29 Oct. 'Tens' of **Savi's Warblers** *Locustella luscinioides* Palaikythro (Balikesir) pools 2 Sep (unusual numbers, Plate 7) and singles Zakaki marsh 6 Oct and Anthoupolis (Nicosia) 21 Oct; six ringed Polis reedbeds 13 Oct, three 24 Oct and one 5 Nov. A **Goldcrest** *Regulus regulus* Troodos 14 Nov, another Alymirolivado (Troodos) 17 Nov and five Livadi tou Pashia (Troodos) 20 Nov (uncommon winter visitor).

The first summer record of **Wallcreeper** *Tichodroma muraria* Avakas gorge 22 Jul and first sighting of the regular overwintering birds there 6 Nov and two 9 Dec; a single Tunnel beach (Episkopi) 26 Dec. At least seven juv **Rose-coloured Starlings** *Pastor roseus* 13–16 Aug near Apostolos Andreas, Karpasia (Karpaz). Up to four juvs Akrotiri area 10 Aug–5 Sep and singles Mia Milia (Haspolat) STP 16 Aug (Plate 8) and Livera (Sadrazamköy) 4 Sep. One **Common Nightingale** *Luscinia megarhynchos* Kritou Tera 23 Nov (late record). A **Red-breasted Flycatcher** *Ficedula parva* ringed Agios Minas (Akamas) 8 Oct, one Livera (Sadrazamköy) 27 Oct and one cape Kormakitis (Koruçam) 27–28 Oct. One first winter male **'Western Siberian Stonechat'** *Saxicola m. maurus* Akrotiri marsh (Phasouri reedbeds) 15 Oct and a male Lady's Mile 28 Dec.

A **Rock Sparrow** *Petronia petronia* Paphos headland 15 Nov and five Syngrasis (Simürüstü) 22 Dec (Plate 9). Single **Dunnocks** *Prunella modularis* Mandria (Limassol) 20 Nov and Kritou Tera 21–23 Nov. **Citrine Wagtails**



Plate 9. Rock Sparrow *Petronia petronia* 22 December 2018, Syngراس (Sınırüstü), Cyprus. © Birtan Gökeri



Plate 10. Common Rosefinch *Carpodacus erythrinus* 29 October 2018, Zakaki marsh, Cyprus. © Matt Smith



Plate 11. Red-fronted Serin *Serinus pusillus* 29 October 2018, Livera (Sadrazamköy), Cyprus. © Ali Özdiñç



Plate 12. Red-fronted Serin *Serinus pusillus* 29 October 2018, Livera (Sadrazamköy), Cyprus. © Ali Özdiñç

Motacilla citreola at Akrotiri SL, Larnaca STP and Zakaki marsh 4 Aug–7 Nov and up to two Larnaca STP 19–23 Nov. Up to three **Richard's Pipits** *Anthus richardi* Mandria (Paphos) 2–12 Oct and a single there 5 Nov; three cape Greco 3 Oct and one Paphos headland 11 Oct. Single **Bramblings** *Fringilla montifringilla* Agia Varvara (Paphos), Agios Sozomenos, Armou hills, Livadi tou Pashia (Troodos), Paphos STP and Souni plus two at Platania during Nov. A **Hawfinch** *Coccothraustes coccothraustes* Livadi tou Pashia 5 Nov and a juv **Common Rosefinch** *Carpodacus erythrinus* Zakaki marsh 29 Oct (Plate 10). Single vagrant **Red-fronted Serins** *Serinus pusillus* Livera (Sadrazamköy, Plates 11, 12) 29 Oct, Akrounta 31 Oct–2 Nov and Nicosia 9 Dec. One **Yellowhammer** *Emberiza citronella* Apostolos Andreas (Karpasia) 10 Nov.

EGYPT

29 **Yellow-billed Storks** *Mycteria ibis* Aswan 17 Apr and a **Goliath Heron** *Ardea goliath* Wadi Lahami 22 May. A juvenile **Bateleur** *Terathopius ecaudatus* Sharm El-Sheikh, Sinai, 2 Dec. A pair of **Three-banded Plovers** *Charadrius tricollaris* with three juveniles near Sahari, Aswan, 15 Apr and the third record of **Pectoral Sandpiper** *Calidris melanotos* Makadi bay near Hurghada, 27 Mar. 19 **Chestnut-bellied Sandgrouse** *Syrhaptes exustus* Gebel Elba, Hala'ib Triangle, 24 Jul. One **Pallid Scops Owl** *Otus brucei* Wadi Um Ethl, between Shalateen and Baranis, 16 Dec. One **Pied Crow** *Corvus albus* Gebel Elba 9

Apr. **Hypocolius** *Hypocolius ampelinus* Hamata 29 Nov and Marsa Alam 18–19 Dec. A **Black Scrub Robin** *Cercotrichas podobe* Shalaten 29 Dec.

GEORGIA

'**Western White Stork**' *Ciconia c. ciconia* feeding four chicks 2090 m asl near Poka 11 Jun and 15 **Sand Martins** *Riparia riparia* at nest holes in railway cutting 2162 m asl near Paravani on same day. Ten singing **Great Reed Warblers** *Acrocephalus arundinaceus* in 150 m x 10 m nearly-dry stand of *Phragmites australis* southern Batumi 12 Jun; five nests located 1.9–2.3 m above ground were unusually high.

IRAN

The following records are from a visit to northeast Iran, 29 Nov–10 Dec 2018. 3200 **Common Shelducks** *Tadorna tadorna* Gomishan wetland 3 Dec and 5000 **Mallards** *Anas platyrhynchos* Khajeh Nafas port 1 Dec. 7800 **Greater Flamingos** *Phoenicopterus roseus* Gomishan wetland 3 Dec and 440 **Great Egrets** *Ardea alba* Khajeh Nafas port 1 Dec. An adult male **Pallid Harrier** *Circus macrourus* Panseaco shrimp site 3 Dec, a female-type Gomishan wetland 3 Dec, adult males Guzni Tapeh and Keshto Sanat 6 Dec. 28 **Long-legged Buzzards** *Buteo rufinus* along the road Gonbad-e Qabus–Turkmenistan border 6 Dec. The last **Siberian Crane** *Leucogeranus leucogeranus* of the formerly large wintering population Fereydoun Kenar Damgoh 29 Nov (Plate 13, the bird is called Omid by the local



Plate 13. Siberian Crane *Leucogeranus leucogeranus* 29 November 2018, Fereydoun Kenar Damgoh, Iran. © Magnus Ullman



Plate 14. White-crowned Penduline Tit *Remiz coronatus* 2 December 2018, Alagol, Iran. © Ehsan Talebi



Plate 15. Hume's Leaf Warbler *Phylloscopus humei* 5 December 2018, Kolajan Sadat, Iran. © Magnus Ullman



Plate 16. Pheasant-tailed Jacana *Hydrophasianus chirurgus* 12 November 2018, Lamerd, Fars province, Iran. © Ebrahim Abbasi

inhabitants 'Hope'. There is little hope for this bird since his female disappeared in 2007. 3000–5000 **Northern Lapwings** *Vanellus vanellus* Fereydoun Kenar Damgoh 29 Nov. 7500 **Dunlins** *Calidris alpina* Khajeh Nafas port 1 Dec and 2400 Gomishan wetland 3 Dec. 2800 **Common Black-headed Gulls** *Chroicocephalus ridibundus* Shour lake 5 Dec, a **Great Black-headed Gull** *Ichthyaetus ichthyaetus* and one **Caspian Gull** *Larus cachinnans* Khajeh Nafas port 1 Dec. A **Steppe Gull** *L. fuscus barabensis* Gomishan wetland 3 Dec.

10 000 **Pin-tailed Sandgrouse** *Pterocles alchata* Panseaco shrimp site 1 Dec and 18 000 along the road Gonbad-e Qabus–Turkmenistan border 6 Dec. A **Cinereous Tit** *Parus cinereus intermedius* Almagol 4 Dec, five **White-crowned Penduline Tits** *Remiz coronatus* Alagol 2 Dec (Plate 14), and two Kheyr Khvageh 6 Dec. 20 000–30 000 **Calandra Larks** *Melanocorypha calandra* Panseaco shrimp site 1 Dec and 6000 Gomishan wetland 3 Dec. A **Hume's Leaf Warbler** *Phylloscopus humei* Kolajan Sadat 5 Dec (probably the first for Golestan province, Plate 15). A **Black-throated Thrush** *Turdus atrogularis* Tepal 8 Dec and 16 Parvar 9 Dec. One **Eversmann's Redstart** *Phoenicurus erythronotus* Til Abad 8 Dec, three Ghatri 8 Dec, one Tepal 8 Dec and six 6 Parvar 9 Dec. A male **Northern Wheatear** *Oenanthe oenanthe* Lar 29 Nov and a **Desert Wheatear** *O. deserti* Khajeh Nafas port 1 Dec. A total of 35 **Finsch's Wheatears** *O. finschii* around Alagol lakes 2 and 5 Dec and 55 along the road Gonbad-e Qabus–Turkmenistan border 6 Dec. One **Radde's Accentor** *Prunella ocularis*

Mirza Bayloo 7 Dec, one near Dasht café 7 Dec, five Til Abad 8 Dec, four Parvar 9 Dec. A **Richard's Pipit** *Anthus richardi* Khajeh Nafas port 1 Dec. One **Pheasant-tailed Jacana** *Hydrophasianus chirurgus* 12–23 Nov Lamerd (Plate 16), Fars province, southern Iran (first record).

IRAQ

New breeding sites found for **Red-crested Pochards** *Netta rufina* in southern Iraq. 250 **Marbled Ducks** *Marmaronetta angustirostris* Al Dalmaj wetlands, Diwaniyah governorate, 23 Oct; however, dedicated surveys found very few birds in some wetlands over southern Iraq: the number of Marbled Ducks counted autumn 2018 is less than 5% of the count over the past decade, despite availability of suitable habitat. Five out of 14 **White-Headed ducks** *Oxyura leucocephala* killed by hunters at a fish lake Al Shanafiyah, Diwaniyah governorate, 19 Oct, while three present in the southern marshes, Basra governorate, 14 Nov. A **Black Stork** *Ciconia nigra* killed Al Dalmaj wetlands 16 Oct. A **Goliath Heron** *Ardea goliath* killed by hunters Meribe marsh, southern Iraq 14 Jul. New **Black-winged Kite** *Elanus caeruleus* breeding sites (active nests with chicks) located in the middle Euphrates valley, central Iraq, an expansion of the breeding range. Two **Steppe Eagles** *Aquila nipalensis* near Dukan 7 Nov and three Qara Dagh area 12 Dec. Eight **Eastern Imperial Eagles** *A. heliaca* near Dukan 7 Nov. 3000 **Black-tailed Godwits** *Limosa limosa* Dalmaj wetlands 23 Oct. An **Armenian Gull** *Larus armenicus* along the west bank of the central marshes Nov–Dec.

New **Eurasian Hoopoe** *Upupa epops* and **Hypocolius** *Hypocolius ampelinus* breeding locations found southern Iraq. Over thirty **Basra Reed Warblers** *Acrocephalus griseldis* caught mid July in relatively small area of Al Dalmaj wetlands indicates the seeming density of this threatened species while nine **Moustached Warblers** *Acrocephalus melanopogon* with brood patches were recorded there. Only a few **Eurasian Reed Warblers** *A. (s.) scirpaceus* observed during the breeding season in the same area. Six **Common Starlings** *Sturnus vulgaris* Al Dalmaj wetlands early July is an unusual record. New **Spanish Sparrow** *Passer hispaniolensis* breeding sites found southern Iraq.

ISRAEL

A 1st CY **Barnacle Goose** *Branta leucopsis* Agamon Hula 26 Nov–year-end (first record, Plate 17). The **Lesser White-fronted Goose** *Anser erythropus* first reported January 2018 and which commuted between Eilat and Aqaba bird observatory, Jordan, until March 2018 (last date for Eilat) and 4 May (last date for Aqaba) was seen again Aqaba 22 Jul–19 Nov. It commuted between Eilat and Aqaba during November and spent all December in Eilat. A **Pink-backed Pelican** *Pelecanus rufescens* Hula reserve, 27 Aug–30 Sep. The third record of **Yellow-billed Kite** *Milvus aegyptius* Km19 STP, Eilat 18 Jul–early Sep (Plates 19, 20). A good number of **White-tailed Lapwings** *Vanellus leucurus* noted many locations during Sep. One **Pacific Golden Plover** *Pluvialis fulva* Jizreel valley, 29 Sep–31 Oct and one Tel Aviv 30 Oct (similar dates and locations to 2017). The first record of **Buff-breasted Sandpiper** *Calidris subruficollis* Ga'ash grass fields, north of Tel Aviv, 24–26 Oct (Plate 18). A **Pin-tailed Snipe** *Gallinago stenura* Ein Feshkha (north Dead sea) 12 Oct. One juv **Black-winged Pratincole** *Glareola nordmanni* Yavne 18 Jul–5 Aug (early arrival). A **Greater Crested Tern** *Thalasseus bergii* 29 Jul off North Beach, Eilat where up to 17 **Lesser Crested Terns** *Thalasseus bengalensis*, 47 **Bridled Terns** *Onychoprion anaethetus* and a **Long-tailed Skua** *Stercorarius longicaudus* also recorded July. A moribund **Atlantic Puffin** *Fratercula arctica* Bustan Haglil beach, north Mediterranean coast, 15 Sep (first record for Israel and OSME region, precise category currently undetermined).

An **Oriental Turtle Dove** *Streptopelia orientalis* Yotvata 12 Sep and a 1st CY **Rufous Turtle Dove** *S. (orientalis) meena* Ga'ash 31 Oct. A **Steppe Grey Shrike** *Lanius (meridionalis) pallidirostris* Yotvata 14 Sep and an **Oriental Skylark** *Alauda gulgula* ringed Tel Aviv 26 Sep. One **Dusky Warbler** *Phylloscopus fuscatus* ringed Ma'ayan Zvi, Carmel coast, 16 Oct (eighth record). An early **Yellow-browed Warbler** *P. inornatus* Sde Boker 23 Sep; five wintering birds in December in south. One **Hume's Leaf Warbler** *P. humei* Mazkeret Batya 27 Oct and up to four wintering in south Dec. First record **Arctic Warbler** *P. borealis* ringed IBRC, Eilat, 23 Sep while 14th record



Plate 17. Barnacle Goose *Branta leucopsis* 30 November 2018 Agamon Hula, Israel. © Katya Rudnev



Plate 18. Buff-breasted Sandpiper *Calidris subruficollis* 25 October 2018, Ga'ash, north of Tel Aviv, Israel. © Eliraz Dvir



Plate 19. Yellow-billed Kite *Milvus aegyptius* 30 July 2018 Km19 sewage treatment plant, Eilat, Israel. © Aviv Etzion



Plate 20. Yellow-billed Kite *Milvus aegyptius* 30 July 2018 Km19 sewage treatment plant, Eilat, Israel. © Aviv Etzion

Western Grasshopper Warbler *Locustella naevia* ringed Midreshet Ben Gurion 17 Aug.

The female **Red-rumped Wheatear** *Oenanthe moesta* recorded Uvda valley Oct 2017–Feb 2018 returned 2 Nov; one of last winter's **Basalt Wheatears** *O. lugens warriae* returned there 2 Nov and remained to year-end. The **'Iranian Wheatear'** *O. (lugens) persica*

recorded Amasa mountain, north Negev, 10 Mar–2 Apr 2018 returned 8 Nov and remained to year-end. An **Olive-backed Pipit** *Anthus hodgsoni* Mazkeret Batya 9 Oct and one **Pine Bunting** *Emberiza leucocephalos* Jerusalem 16 Dec–year-end. One **Little Bunting** *E. pusilla* Nafcha, Negev mountains, 17 Oct and two recorded elsewhere Nov.



Plate 21. Lichtenstein's Sandgrouse *Nyctiperdix lichtensteinii*, 29 November 2018, Aqaba bird observatory, Jordan.
© Feras Rahahleh



Plate 22. Lichtenstein's Sandgrouse *Nyctiperdix lichtensteinii*, 29 November 2018, Aqaba bird observatory, Jordan.
© Feras Rahahleh

JORDAN

The **Lesser White-fronted Goose** *Anser erythropus* first reported in January 2018 and which commuted between Eilat and Aqaba bird observatory until 4 May was seen again Aqaba 22 Jul–19 Nov where it consorted with an **Egyptian Goose** *Alopochen aegyptiaca*. It commuted between Aqaba and Eilat during Nov but spent all Dec Eilat. One **Pygmy Cormorant** *Microcarbo pygmeus* Ayla oasis, close to ABO, 20 Sep. Two pairs **Lichtenstein's Sandgrouse** *Nyctiperdix lichtensteinii* ABO 29

Nov (third record, Plates 21, 22). An Apr–Jun survey of **Nubian Nightjars** *Caprimulgus nubicus* by Jordan BirdWatch recorded 33 in 41 spot counts in suitable habitat, with a concentration south of the Dead sea and a further location in Wadi Araba. A 1st CY **Peregrine Falcon** *Falco peregrinus* (rare migrant and winter visitor) flying south 5 Oct eastern desert; bedouins reported several Peregrines and a **Saker Falcon** *F. cherrug* being chased or captured (to be sold to falconers in the Gulf region) Sep–Oct 2018.

KUWAIT

Great Crested Grebes *Podiceps cristatus* recorded Jahra Pools reserve Jun–Sep. **Black Storks** *Ciconia nigra* JPR 17 Sep, 29 Oct, 1 Nov and Sabah Al Ahmad natural reserve 6 Oct. ‘**Western White Stork**’ *Ciconia c. ciconia* first seen 20 Aug and then to 25 Sep (max 250), all JPR. Young **Little Bitterns** *Ixobrychus minutus* JPR 2 Jul. 20 **Black-crowned Night Herons** *Nycticorax nycticorax* Sulabiya pivot fields and 11 JPR 21 Sep. 286 **Grey Herons** *Ardea cinerea* JPR 21 Sep, 50 **Purple Herons** *A. purpurea* SPF 21 Sep and 56 JPR 24 Sep. A **Great White Pelican** *Pelecanus onocrotalus* JPR 2 Sep.

Black-winged Kite *Elanus caeruleus* recorded various dates SPF, max two 11 Aug and 11 Sep, last record 27 Nov. **European Honey Buzzard** *Pernis apivorus* JPR 17 Sep, Wafra 25 Sep, JPR and SAANR 29 Sep. Two **Crested Honey Buzzards** *Pernis ptilorhynchus* SPF 27 Sep, two 27 Nov and one Jahra farm 3–4 Dec. Two **Eurasian Griffon Vultures** *Gyps fulvus* JPR 30 Oct, one 17 Nov, three Ritqa 22 Nov and possibly the same three north of Ali Al Salem airbase 30 Nov. Two **Cinereous Vultures** *Aegypius monachus* Ritqa 22 Nov and north of Ali Al Salem airbase 30 Nov, one Al Kabd reserve 7 Dec. Seven **Short-toed Snake Eagles** *Circaetus gallicus* JPR 17 Sep. 14 **Greater Spotted Eagles** *Clanga clanga* JPR 29 Oct. **Steppe Eagles** *Aquila nipalensis* from 23 Sep (15), last record 30 Nov, max 50 JPR 30 Oct. ‘**Northern Shikra**’ *Accipiter (badius) cenchroides* various locations Sep–Oct and a **Levant Sparrowhawk** *Accipiter brevipes* Al Abra q 27 Sep. A **Black Kite** *Milvus [m.] migrans* JPR 29 Sep. **Black-eared Kites** *Milvus (migrans) lineatus* recorded various locations from 14 Sep, max a large flock 7th Ring road 29 Oct, last record 1 Dec Mutla’a ranch. **Long-legged Buzzards** *Buteo rufinus* recorded SAANR and SPF from 2 Sep, last record 15 Dec. ‘**Northern Steppe Buzzards**’ *B. b. vulpinus* recorded 12 Jun–15 Dec various locations, 80 SAANR 13 Sep and 25 Al Abra q 2 Oct.

Juvenile **Water Rails** *Rallus aquaticus* JPR 9 Jun, indicating breeding. A **Baillon’s Crake** *Zapornia pusilla* 13 Oct JPR with single **Little Crakes** *Z. parva* there 14 Sep and 28–29 Sep. **Spotted Crakes** *Porzana porzana* Fintas park and JPR 28 Sep. **Northern Lapwings** *Vanellus vanellus* recorded SPF 5 Oct–27 Nov when a maximum of 100 seen. A **Spur-winged**



Plate 23. Richard’s Pipit *Anthus richardi* 15 December 2018, Sulabiya pivot fields, Kuwait. © Paul Scott

Lapwing *V. spinosus* 16–25 Jun JPR. Small numbers (two–four) of **Sociable Lapwings** *V. gregarius* SPF from 5 Oct, with max seven 27 Oct, last record 15 Dec. **White-tailed Lapwings** *V. leucurus* seen Sep–Nov with max 27 SPF 27 Nov; juveniles JPR 1 and 9 Jun. A **Eurasian Golden Plover** *Pluvialis apricaria* 15 Dec SPF (14th record). Eight **Caspian Plovers** *Anarhynchus asiaticus* SPF 20 Aug and a **Spotted Redshank** *Tringa erythropus* 10 Jul JPR. 40 **Collared Pratincoles** *Glareola pratincola* JPR 16 Jul and 34 on 26 Jul. First arrival of **Black-winged Pratincoles** *Glareola nordmanni* JPR 23 Jun then two there 10 Aug with singles 3 and 13 Nov at SPF. Juvenile **Cream-coloured Coursers** *Cursorius [c.] cursor* JPR 9 Jun. A **Little Gull** *Hydrocoloeus minutus* JPR 16–23 Jun and a **Baltic Gull** *Larus f. fuscus* there 7 Oct and one **Black Tern** *Chlidonias niger* there 13 Jun. Six **Arctic Skuas** *Stercorarius parasiticus* JPR 10 Jul.

12th record of **Western Stock Dove** *Columba o. oenas* SPF 10 Dec. **Western**

Barn Owls *Tyto alba* SAANR 26 Sep and Boulevard mall, Salmiya, 9 Oct and **Pallid Scops Owls** *Otus brucei* JPR 1 Nov and Rumaithiya park 16 Nov. Nine **Egyptian Nightjars** *Caprimulgus aegyptius* JPR 21 Aug. Max count ten **White-throated Kingfishers** *Halcyon smyrnensis* 8 Nov. **Pied Kingfishers** *Ceryle rudis* SAANR 16 Sep, SPF, JPR and SAANR all 6 Oct and ten JPR 8 Nov. A late **Lesser Kestrel** *Falco naumanni* SPF 24 Nov and a **Eurasian Hobby** *F. subbuteo* JPR 5 Jun, SAANR 2 Sep, JPR 14 Sep (three). First arrival of **Hypocolius** *Hypocolius ampelinus* Mutla'a ranch 8 Sep and max 100 Kuwait University 8 Nov. A **Eurasian Penduline Tit** *Remiz pendulinus* JPR 11 Nov (scarce winter visitor). One **Bar-tailed Lark** *Ammomanes cinctura* Liyah-north 4 Dec and at least 1000 **Greater Short-toed Larks** *Calandrella brachydactyla* SAANR 9 Sep.

A **Caucasian Chiffchaff** *Phylloscopus [collybita] lorenzii* JPR 17 Nov. A **Dusky Warbler** *P. fuscatus* Al Shallal farm 29 Sep (third record) and a **Yellow-browed Warbler** *P. inornatus* there 22 Sep. A **Hume's Leaf Warbler** *P. humei* Rawdatain bottling plant

10 Dec (13th record). A **Basra Reed Warbler** *Acrocephalus griseldis* JPR 7 Oct. Single **Moustached Warblers** *A. melanopogon* JPR 16 Jun and Al Shaheed park 14 Nov, 10 Dec. 12 **Afghan Babblers** *Turdoides (caudata) huttoni* Abdaly farm 28 Nov. Five **Thrush Nightingales** *Luscinia luscinia* Al Abraq 2 Oct and one Al Shaheed park 14 Nov and 10 Dec. One '**Caspian Stonechat**' *Saxicola maurus hemprichii* SPF 3–10 Nov. A **Finsch's Wheatear** *Oenanthe finschii* Wafra 8 Nov and one '**vittata**' **Pied Wheatear** *O. pleschanka* Jahra farms 3 Aug.

A pair of **Spanish Sparrows** *Passer hispaniolensis* gathering nesting material Al Abraq 2 Jun and a **Yellow-throated Sparrow** *Gymnoris xanthocollis* JPR 21 Sep. **Richard's Pipits** *Anthus richardi* JPR 16 Sep and SPF 13 Oct and 15 Dec (Plate 23). A **Eurasian Siskin** *Spinus spinus* Green island 19 Nov and two Al Abraq 26 Nov. 50 **Corn Buntings** *Emberiza calandra* SPF 26 Nov. An **Eastern Cinereous Bunting** *E. (cineracea) semenowi* SAANR 12 Sep and one **Ortolan Bunting** *E. hortulana* JPR 12 Jun. A **Little Bunting** *E. pusilla* Al Abraq 7 Oct.



Plate 24. Kettle of Lesser Spotted Eagles *Clanga pomarina* 3 October 2018, Ras El-Metn, Lebanon. © Zsombor Károlyi

LEBANON

5000 raptors counted during a youth bird camp Ras al-Matn, mount Lebanon, 2 Oct–mid day 4 Oct. These included **Egyptian Vultures** *Neophron percnopterus*, **Eurasian Griffon Vultures** *Gyps fulvus*, 4843 **Lesser Spotted Eagles** *Clanga pomarina* (Plate 24) and **Northern Goshawks** *Accipiter gentilis*.

In addition an **Egyptian Vulture** *Neophron percnopterus* Akkar 16 Sep, a **Eurasian Griffon Vulture** *Gyps fulvus* Ehden 2 Oct and two there 4 Oct, a juv **Cinereous Vulture** *Aegyptius monachus* Ehden 6 Oct, an immature **Golden Eagle** *Aquila chrysaetos* Aytouli 9 Sep, another Ehden 21 Sep and a **Northern Goshawk** *Accipiter gentilis* Ehden 11 Sep and Sawfar 5 Oct.

Three **Great Spotted Cuckoos** *Clamator glandarius* Koura 5 Jul and one Ras Baalbek 1 Aug. A **Temminck's Lark** *Eremophila bilopha* Ras Baalbek 31 Jul. A **Willow Warbler** *Phylloscopus trochilus* ssp *yakutensis* 6 Oct American University of Beirut, four **Goldcrests** *Regulus (r.) regulus* Qammoua 11 Aug and six there 25 Aug. A **European Robin** *Erithacus rubecula* Ehmej 3 Jun and one Shouf 9 Jun.

A **Citrine Wagtail** *Motacilla [c.] citreola* Ouyoun Orghoch 23 Jul.

OMAN

Six **Eastern Greylag Geese** *Anser a. rubrirostris* Barr Al Hikman 11 Nov. A **Greater White-fronted Goose** *A. albifrons* Raysut lagoons 13 Nov and 2 Dec and the same bird West Khawr, Salalah, 30 Nov, plus one Al Mouj golf course, Seeb, 28 Dec. Four **Cotton Pygmy Geese** *Nettapus cormandelianus* West Khawr 30 Nov and five **Ferruginous Ducks** *Aythya nyroca* Raysut lagoons 2 Dec.

Single **Black Storks** *Ciconia nigra* Wadi Darbat and Tayq cave 27 Oct, Khawr Stimah 3 Nov, Khawr Rawri 30 Nov and probably same bird 17 Dec. Max 900 **Abdim's Storks** *Ciconia abdimii* recorded Raysut STP 13 Nov (Plate 25). An **African Sacred Ibis** *Threskiornis aethiopicus* Raysut lagoons 5 Nov (ninth record) and possibly same bird Taqah beach 14–15 Nov. 50 **Glossy Ibises** *Plegadis falcinellus* Sahanawt farm 1 Dec. A **Eurasian Bittern** *Botaurus stellaris* Wadi Baqlat 3 Nov and Khawr Sawli 6 Nov. One **Yellow Bittern** *Ixobrychus sinensis* East Khawr 13 Nov. Six **Indian Pond Herons**



Plate 25. Abdim's Stork *Ciconia abdimii* 30 November 2018, Raysut sewage treatment plant, Oman. © Oscar Campbell

Ardeola grayii Salalah nature reserve 1 Dec was a high count. Two **Intermediate Egrets** *Ardea intermedia* Khawr Taqah 16 Nov, one Khawr Rawri 16 Nov and two West Khawr 30 Nov (probably same birds as 16 Nov). A **Great White Pelican** *Pelecanus onocrotalus* Masirah island 9 Nov, two Shinas 16 Nov and two West Khawr 29 Nov. Eight **Brown Boobies** *Sula leucogaster* Al Mughsayl 1 Dec and one Taqah 2 Dec.

Two **Black-winged Kites** *Elanus caeruleus* Barka farms 7 Nov. Two **Crested Honey Buzzards** *Pernis ptilorhynchus* Salalah public park 16 Nov and one West Khawr 3 Dec. One **Eurasian Griffon Vulture** *Gyps fulvus* Tawi Atayr 12 Nov and five **Lappet-faced Vultures** *Torgos tracheliotos* Al Amerat waste disposal site 18 Nov. 600 **Steppe Eagles** *Aquila nipalensis* Raysut WDS 2 Nov. A male **Pallid Harrier** *Circus macrourus* Sahanawt

farm 1 Dec. One **Macqueen's Bustard** *Chlamydotis macqueenii* Wave, Seeb, 22 Oct and one in the more normal location, Jaaluni White Oryx reserve, 13 Nov. A **Corncrake** *Crex crex* Qurm park 26 Oct. A juv **Little Crake** *Porzana parva* West Khawr 2 Dec and one **Spotted Crake** *P. porzana* East Khawr 13 Nov. Nine **Spotted Thick-knees** *Burhinus capensis* Khawr Balid 11 Nov, a high count. A **Spur-winged Lapwing** has been consorting with a **Red-wattled Lapwing** for a few years at Raysut STP and the pair seemed to have bred since one adult **Spur-winged Lapwing** *Vanellus spinosus* there 13 Nov was accompanied by four adult **Spur-winged Lapwing** × **Red-wattled Lapwings** *Vanellus indicus* (two hybrids seen 30 Nov–3 Dec, Plate 26, with the adult **Spur-winged**). Two **White-tailed Lapwings** *V. leucurus* Raysut STP 30 Nov–3 Dec.



Plate 26. Apparent hybrid Spur-winged Lapwing *Vanellus spinosus* × Red-wattled Lapwing *Vanellus indicus* 2 December 2018, Raysut sewage treatment plant, Oman. Whilst superficially close in appearance to Spur-winged Lapwing, in particular with regard to the wing and tail pattern, close inspection reveals several anomalous characters: a rather large red eye and a small area of reddish facial skin on the lores, rather extensive black on the sides of the chin and throat and the restricted black belly patch with a blotchy lower border. In addition, the bill was rather deeper and longer than typical of Spur-winged and the call, given regularly, was different to the typical calls of either species. © Oscar Campbell



Plate 27. Baltic Gull *Larus fuscus fuscus* 2 December 2018, Taqah, Oman. © Oscar Campbell

A **Jack Snipe** *Lymnocyptes minimus* West Khawr 30 Nov and a **Great Snipe** *Gallinago media* Haima park 8 Nov. Up to two **Spotted Redshanks** *Tringa erythropus* Raysut STP 30 Nov–3 Dec. 14 **Collared Pratincoles** *Glareola pratincola* Qatab farm, Sohar, 22 Sep. Three **Small Pratincoles** *G. lactea* East Khawr, 3 Dec and one Al Mouj golf course, Seeb, 28 Dec. A **Brown Noddy** *Anous stolidus* East Khawr 19 Nov and two further west at Beach villas 20 Nov. The fourth record of **Black-legged Kittiwake** *Rissa tridactyla* Shannah, Barr Al Hikman, 6 Nov and the second record of **Brown-headed Gull** *Chroicocephalus brunnicephalus* Raysut 24 Nov. A **Baltic Gull** *Larus f. fuscus* Taqah 2 Dec (Plate 27).

A **Rufous Turtle Dove** *Streptopelia (orientalis) meena* Shisr 1 Nov and two Salalah public park 16 Nov. 56 **Namaqua Doves** *Oena capensis* Sohar Sun farms 7 Sep was a high count. A **Pied Cuckoo** *Oxylophus jacobinus* Ayn Hamran 14–15 Nov and a male and female **Asian Koel** *Eudynamis* [s.] *scolopaceus* Al Hayy 13 Nov. One **Common Cuckoo** *Cuculus canorus* Wadi Darbat 2 Dec. At least two **Arabian Scops Owls**

Otus pamela calling at dusk Ayn Razat, 1 Dec and at least three Wadi Darbat 2 Dec. An '**Arabian Spotted Eagle Owl**' *Bubo (africanus) milesi* Ayn Keesh, near Salalah, 18 Nov; 10 **Alpine Swifts** *Tachymarptis melba* Ayn Tobroq 6 Nov; three **Forbes-Watson's Swifts** *Apus berliozi* Khawr Rawri 30 Nov, 20 Sahanawt farm 1 Dec and eight Wadi Darbat 2 Dec were all latish records. Six **European Rollers** *Coracias garrulus*, Sahanawt Farm 1 Dec with two other singles elsewhere in the Salalah area. A **Grey-headed Kingfisher** *Halcyon leucocephala* West Khawr 30 Nov, five **Blue-cheeked Bee-eaters** *Merops persicus* Raysut STP 3 Dec and a **Eurasian Wryneck** *Jynx torquilla* Ayn Hamran 30 Nov. Single **Amur Falcons** *Falco [vespertinus] amurensis* Barr Al Hikman 11 Nov and Tawi Atayr 15 Nov with a **Lanner Falcon** *F. biarmicus* Taqah beach 14 Nov.

The third record of **Brown Shrike** *Lanius cristatus* Ayn Hamran 15–21 Nov. A **Eurasian Golden Oriole** *Oriolus [o.] oriolus* Sohar 9 Oct. Four **Hypocolius** *Hypocolius ampelinus* Qatbit 17–18 Nov and three Muddayy 18–19 Nov. A **Singing Bush Lark** *Mirafra cantillans*

Haima 8 Nov, the most northerly record if accepted, while 20 singing Sahanawt farm 1 Dec. An **Oriental Skylark** *Alauda gulgula* Barr Al Hikman 11 Nov. One **Hume's Leaf Warbler** *Phylloscopus humei* Al Beed farm 18 Nov the only record. A **Green Warbler** *P. nitidus* Khawr Durf 13 Nov and an **Upcher's Warbler** *Hippolais languida* Ayn Hamran 18 Nov (rarer on autumn passage). Single **Barred Warblers** *Sylvia nisoria* Al Beed farm 1 Nov and Qatbit 18–19 Nov. Four **Rose-coloured Starlings** *Pastor roseus* near Salalah airport 1 Dec. The fourth record of **Black Scrub Robin** *Cercotrichas podobe* Shisr 1 Nov. A **Pale Rockfinch** *Carpospiza brachydactyla* Qatbit 18 Nov. First record of 'East Siberian Wagtail' *Motacilla (alba) ocularis* Al Beed farm 18 Nov. Four **Arabian Golden-winged Grosbeaks** *Rhynchostruthus [socotranus] percivali* Ayn Tobruq 6 Nov and up to two Wadi Keesh 14–20 Nov. A **Little Bunting** *Emberiza pusilla* Qatbit 17–18 Nov.

SAUDI ARABIA

Previous max for **Lesser Flamingo** *Phoeniconaias minor* was 50 but 108 seen just south of Jizan 6 Jul (Plate 28) and a record 420 there 14 Dec (sixth–seventh records, Plate 29);



Plate 28. One Lesser Flamingo *Phoeniconaias minor*, 6 July 2018, Jizan, Jizan province, Saudi Arabia. © Jem Babbington



Plate 29. Lesser Flamingo *Phoeniconaias minor*, 14 December 2018, Jizan, Jizan province, Saudi Arabia. © Phil Roberts

these birds may possibly be displaced birds from Aden, Yemen. Second record of nest building by **Greater Flamingo** *Phoenicopterus roseus* with four nests several km south of Jizan 6 Jul (first breeding attempt for the west coast and only second breeding record, first being the east coast 2016). First record of **Yellow Bittern** *Ixobrychus sinensis* seen regularly King Abdullah University of Science and Technology (near Jeddah) throughout the summer and autumn (probable breeding; first positive identification although photographs from previous years at the same site indicate earlier records). A **Striated Heron** *Ardeola ralloides* Sabkhat Al Fasl (Jubail) 10 Aug with possibly the same bird, Ash Shargiyah development company farm, Fadhili, 7 Sep (a vagrant Eastern province)

An adult **Black-winged Kite** *Elanus caeruleus* Khafra marsh, Jubail, 28 Sep. An adult female **Crested Honey Buzzard** *Pernis ptilorhynchus* near Bani Saad 29 Jun and another at Wadi Wadj, Taif, 14 Jul (only the fourth and fifth summer records). Two returned to winter Dhahran mid Sep–late Nov (summer records now from Asir mountain range from Tanoumah in the south to Taif in the north). The first record (excluding Meinertzhagen's records) of **Rüppell's Vulture** *Gyps rueppelli erlangeri* (an adult) was in a group of 50 **Eurasian Griffon Vultures** *G. fulvus* at Tanoumah 12 Oct (Plate 30); this is also the first documented record of the *erlangeri* subspecies for Arabia. 121 **Grey-headed Swamphens** *Porphyrio poliocephalus* SAF 19 Oct (Plate 31) was a record count. Up to fifteen **Greater Spotted Eagles** *Clanga clanga* SAF from mid Oct where majority will winter. A single **Sociable Lapwing** *Vanellus gregarius* KAUST 1 Dec with a **Great Snipe** *Gallinago media* there 15 Nov, only the second site record. A **Black-winged Pratincole** *Glareola nordmanni* Al Hair 2 Nov. An adult **Baltic Gull** *Larus f. fuscus* SAF 2 Nov was the first eastern record.

Several **Pied Cuckoos** *Oxylophus jacobinus* and **Diederik Cuckoos** *Chrysococcyx caprius* Asir mountains (Tanoumah and An Namas areas) throughout summer. A **Little Owl** *Athene noctua* Judah 31 Aug (probably not uncommon in the Eastern province). The birds resembling **Kleinschmidt's Little Owl** *Athene (noctua) saharae* in An Namas reported



Plate 30. Rüppell's Vulture *Gyps rueppelli erlangeri* 12 October 2018, Tanoumah, Asir province, Saudi Arabia. © Jem Babbington

in *Sandgrouse* 40(2) have subsequently been seen regularly and are regarded as common in the area. A record 16 **Egyptian Nightjars** *Caprimulgus aegyptius* SAF until 8 Aug at least and another ten birds at Khafra marsh 17 Aug. Two **White-throated Kingfishers** *Halcyon smyrnensis* SAF 26 Oct, with one staying to 2 Nov, and one KAUST 20 Oct–31 Dec. A female **Pied Kingfisher** *Ceryle rudis* Al Khobar corniche 19 Oct and four SAF 9 Nov–31 Dec and four Khafra marsh 16 Nov increasing to eight 23 Nov.

Active nests of 'Arabian Magpie' *Pica asirensis* found at both An Namas and Tanoumah Jun–Jul. A **Bimaculated Lark** *Melanocorypha bimaculata* with many other larks Jebal Hamrah, Eastern province, 30



Plate 31. Grey-headed Swamphen *Porphyrio poliocephalus* 19 October 2018, Sabkhat Al Fasl, Jubail, Eastern province, Saudi Arabia. © Jem Babbington



Plate 32. Hooded Wheatear *Oenanthe monacha* 30 November 2018, Jebal Hamrah, Eastern province, Saudi Arabia. © Jem Babbington

Nov. Twenty **Arabian Red-capped Larks** *Calandrella eremica*, including adults and juveniles, Talea'a valley 17 Jun with 40 birds at the same site 13–14 Oct. A single **Wood Warbler** *Phylloscopus sibilatrix* KAUST 4 Oct, first site record. A female **Collared Flycatcher** *Ficedula albicollis* KAUST 29 Aug, the third year this species has been seen at the same location. A **Red-breasted Flycatcher** *F. parva* KAUST 25 Oct (fourth site record). A female **Hooded Wheatear** *Oenanthe monacha* 30

Nov Jebal Hamrah (Plate 32) where birds were also seen Feb–Mar. Two **African Pipits** *Anthus cinnamomeus eximius* Al Mefah park, Tanoumah 14 Jun with another singing at An Namas the same day, the most northerly record in recent years. A female **Black-headed Bunting** *Emberiza melanocephala* near Baaqa, Hail, 17 Aug.

TURKEY

A record count of 150 **European Storm Petrels** *Hydrobates pelagicus* off Didim, Aydın, 14 Oct. A single **Horned Grebe** *Podiceps auritus* Dardanelles 31 Dec. A **Demoiselle Crane** *Anthropoides virgo* during autumn migration Mogan Gölü 23 Aug. A single **Red Kite** *Milvus milvus* photographed Büyükçekmece, near Istanbul, 13 Aug. One **Little Bustard** *Tetrax tetrax* Kavak delta, Çanakkale 25 Nov (which will hopefully survive hunters). Three **Bar-tailed Godwits** *Limosa lapponica* Göksu delta 27 Sep, a **Pectoral Sandpiper** *Calidris melanotos* Manyas Gölü 30 Sep and a **Terek Sandpiper** *Xenus cinereus* Kocaçay delta 4 Sep (unusual in western Turkey). Two **Pomarine Skuas** *Stercorarius pomarinus* around fishing boats off Mersin 16 and 29 Dec. A **White-winged Tern** *Chlidonias leucopterus* in full breeding plumage Rize 29 Dec while the **Great**

Black-backed Gull *Larus marinus* first seen 26 Jan Küçükçekmece, İstanbul, returned there 21 Dec and later moved to the neighbouring lake Büyükçekmece 29 Dec.

A single moulting juvenile **Rufous Turtle Dove** *Streptopelia (orientalis) meena* Milleyha, Hatay, 15 Sep. Two **Namaqua Doves** *Oena capensis* Tuzla, Adana, 9 Sep (seen several times at the site before this date) while another Kızılırmak delta, Samsun, 22 Jul (second sighting Black sea coast). **Saker Falcon** *Falco cherrug* Göksu delta 18 Nov (has become rare in the last ten years due to heavy persecution pressure). A **Carrion Crow** *Corvus corone* of suspect origin Sirkeci train station, İstanbul, 28 May and then at the harbour 14 Oct; unclear if ship-assisted or an escape. Unusually no **Yellow-browed Warblers** *Phylloscopus inornatus* at Kızılırmak delta although one Marmaris, Muğla, 3 Nov and several others on the Mediterranean coast, indicating a possible regular wintering area. A **Red-flanked Bluetail** *Tarsiger cyanurus* lake Kozanlı, Konya 28 Oct (second record). A single **Richard's Pipit** *Anthus richardi* Kavak delta, Çanakkale, 25 Nov and six Milleyha,

Hatay, 8 Dec, where there was also a **Blyth's Pipit** *A. godlewskii* on the same day. A possible **Rock Pipit** *A. petrosus* Milleyha, Hatay, 24 Nov, is still under consideration by TBRC. Single **Little Buntings** *Emberiza pusilla* Rize 13 Oct and Adana 5 Nov.

UNITED ARAB EMIRATES

A **Greater White-fronted Goose** *Anser albifrons* Ajman STP 10 Nov and a pair of **Red-crested Pochards** *Netta rufina* Al Sila'a 21 Nov. 25 **Jouanin's Petrels** *Bulweria fallax* on a pelagic trip off Kalba 12 Oct. A **Great Crested Grebe** *Podiceps cristatus* Ras al Khor 29 Dec (13th record and first since 2004). An **Intermediate Egret** *Ardea (i.) intermedia* Al Badia, Dubai 21 Oct–14 Nov (fourth record) probably the same bird seen Ras al Khor 16 Nov where two were recorded 7–22 Dec (fourth and fifth records). A **Great White Pelican** *Pelecanus onocrotalus* Ras al Khor 14 Aug (and nearby Al Warsan lakes 17 Aug) was presumed to be the same bird seen in late spring; two birds seen 12 Oct, reducing to one by 16 Nov. A **Eurasian Bittern** *Botaurus stellaris* Green Mubazzarah, Al Ain, 25–27 Oct and again 1 Jan 2019. A



Plate 33. Sociable Lapwing *Vanellus gregarius* 18 November 2018, Al Saad, United Arab Emirates. © Oscar Campbell



Plate 34. Pheasant-tailed Jacana *Hydrophasianus chirurgus* 16 November 2018, Ajman sewage treatment plant, United Arab Emirates. © Oscar Campbell

Lappet-faced Vulture *Torgos tracheliotos* at Al Qudra 7 Sep, increasing to a maximum of six, seen until mid Oct. One **Water Rail** *Rallus aquaticus* Green Mubazzarah from 18 Oct (possibly same bird that over-wintered there 2017–2018). A **Baillon's Crake** *Zapornia pusilla* near Green Mubazzarah, 6 Dec (33rd record) and a **Spotted Crake** *Porzana porzana* Abu Dhabi 30 Sep remaining into October.

Up to ten **Sociable Lapwings** *Vanellus gregarius* from 11 Nov at Al Saad, Al Ain (Plate 33, the same site used winter 2017) but only one 7 Dec. A **Caspian Plover** *Anarhynchus asiaticus* Khor al Beida 16 Nov. A **Pheasant-tailed Jacana** *Hydrophasianus chirurgus* Ajman STP 9–16 Nov was the fourth record (Plate 34). A migrant **Whimbrel** seen well offshore 21 Jul (Plate 35) showed some characteristics of 'Steppe' Whimbrel *Numenius phaeopus alboaxillaris*. A **Pectoral Sandpiper** Dubai safari park 13–16 Oct (seventh record). Two **Great Knots** *Calidris tenuirostris* seen Khor al Beida 16 Nov and up to 20 **Broad-billed Sandpipers** *C. falcinellus* Abu Dhabi throughout Nov. A **Eurasian Woodcock** *Scolopax rusticola* near Green Mubazzarah 30 Dec was the first record since 2013. A juvenile **Little Gull** *Hydrocoleus minutus* at Kalba 3–4 Oct (17th record) while a **Long-tailed Skua** *Stercorarius longicaudus* seen on a boat trip off Kalba 12 Oct.



Plate 35. Possible 'Steppe Whimbrel' *Numenius phaeopus alboaxillaris* 21 July 2018, 30 km offshore from Kalba, UAE. © Simon Lloyd

A male **Asian Koel** *Eudynamus scolopaceus* Global Village, Dubai, 22 Nov. A **Pied Kingfisher** *Ceryle rudis* Abu Dhabi 7 Nov with possibly the same bird seen at nearby Saadiyat 9 Nov and 8 Dec, and another Al Sila'a marsh 21 Nov–1 Dec. A few **Blue-cheeked Bee-eaters** *Merops persicus* remained



Plate 36. Paddyfield Pipit *Anthus rufulus* 12 October 2018, Wamm farm, United Arab Emirates. © Oscar Campbell

at several locations until mid Nov, rather later than usual. An **Amur Falcon** *Falco amurensis* Wamm farm 24 Nov (23rd record) and a **Merlin** *F. columbarius* Al Sila'a 16 Nov. A **Masked Shrike** *Lanius nubicus* Al Mamzar park 24 Nov. **Hypocolius** *Hypocolius ampelinus* returned to Lulu island by 26 Oct (20 present); small numbers were recorded there and on Delma island to year-end.

A **Dusky Warbler** *Phylloscopus fuscatus* Al Mamzar park 20–27 Oct (seventh record)

and at least two **Hume's Leaf Warblers** *P. humei* there 29 Dec into Jan 2019. A **Green Warbler** *P. [trochiloides] nitidus* Abu Dhabi 7–8 Sep and two Al Mamzar park 9 Oct. One **Blyth's Reed Warbler** *Acrocephalus dumetorum* Abu Dhabi 19 Aug increasing to four 25 Aug, with up to two remaining into September when further individuals were found (A'Sila'a 14 Sep and Al Mamzar park 15 and 29 Sep). An adult male **Violet-backed Starling** *Cinnyricinclus leucogaster* Al Dhafra beach hotel 1 Dec (second record, first recorded 2000); origin uncertain. A **European Robin** *Erithacus rubecula* at Al Mamzar park 27 Oct and male **Eversmann's Redstarts** *Phoenicurus erythronotus* Al Mamzar 9 Oct and Wadi Shawkah 19 Oct. One **Caspian Stonechat** *Saxicola maurus hemprichi* Al Sila'a 16 Nov–1 Dec (fourth autumn record). The second record of **Paddyfield Pipit** *Anthus rufulus* at Wamm farm 12 Oct (Plate 36, first record Nov 2017). An **Eastern Cinereous Bunting** *Emberiza (cineracea) semenowi* at A'Sila'a 14 Oct was a rare autumn record.

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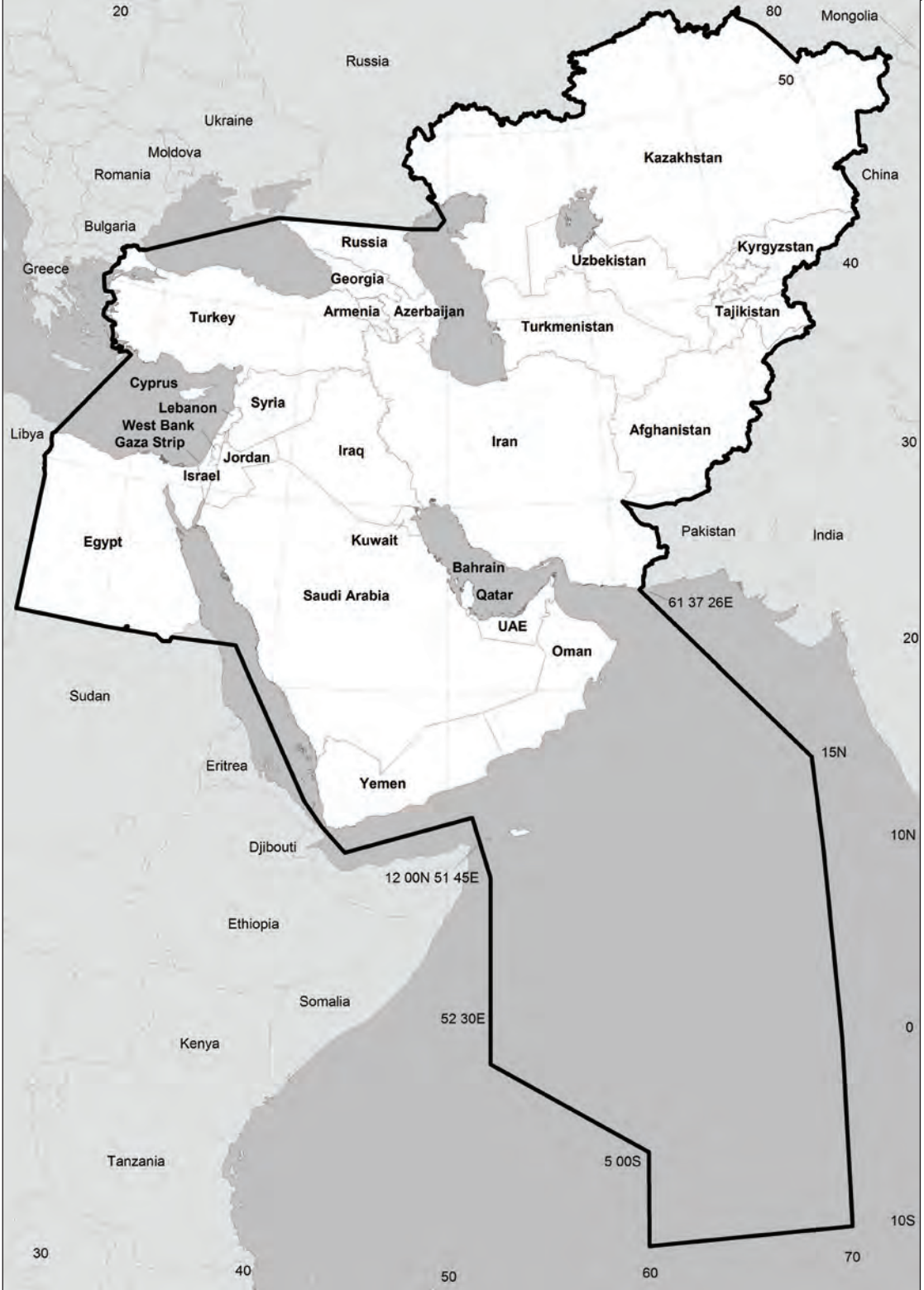
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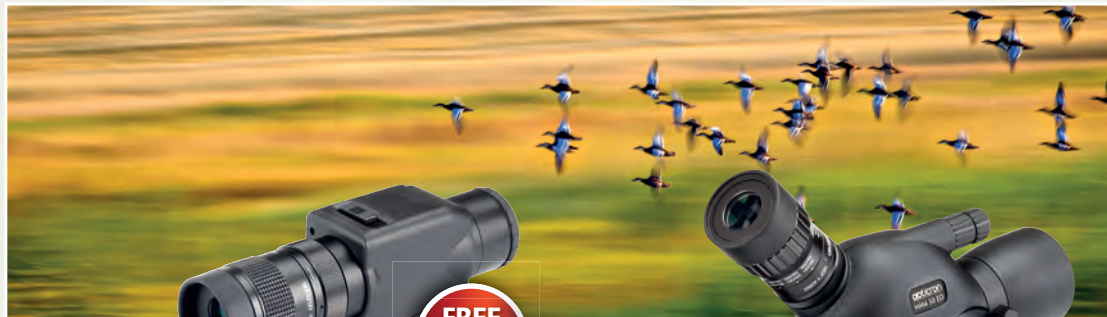


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Opticon equipment can be tried, tested and purchased at good optical retailers nationwide. For product information, your nearest stockist and to order a **Product Guide** please phone us on **01582 726522** or visit us online at **www.opticon.co.uk**

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