

THE ORNITHOLOGICAL
SOCIETY OF THE
MIDDLE EAST



SANDGROUSE
No 3

The ORNITHOLOGICAL SOCIETY OF THE MIDDLE EAST was formed in April 1978 and is a successor to the Ornithological Society of Turkey.

Aims:

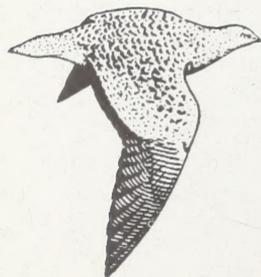
1. To collect, collate and publish ornithological data on the birds of the Middle East.
2. To encourage an interest in and conservation of the birds of the Middle East.
3. To develop a mutually beneficial working relationship with all environmental and conservation bodies and natural history societies in and concerned with the Middle East.

Membership is open to all and spans over 40 countries.

Publications: It is intended to publish *Sandgrouse* as an annual journal to contain scientific papers on all aspects of the ornithology of the Middle East. A bulletin is issued biannually to all members.

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photographed by P. D. Round

FOREWORD

In welcoming the third number of *Sandgrouse*, I think that we can now claim that O.S.M.E. has finally come of age. It is a source of satisfaction to me as the retiring Chairman of Council, that *Sandgrouse*, now that it is published regularly, is fulfilling an important role in providing a serious specialised journal for the publication of papers covering all aspects of ornithological interest within the region.

There is evidence of an increasing interest in the ornithology of the Middle East, as can be seen, for example, by the organisation of tours to areas of ornithological interest. In a more relaxed political climate, this interest could grow considerably. Let us hope that times will become more settled and that O.S.M.E. and *Sandgrouse* will be on hand to help foster an interest in the birds of this fascinating, and in many ornithological aspects, still undiscovered region.

W. H. N. Wilkinson

EDITORIAL

The past year, December 1980 to November 1981, has seen the publication of the first three issues of *Sandgrouse*, marking the successful completion of the publication targets set in 1979 on the formation of the Society and made possible only by the dedicated help and co-operation of all concerned with the preparation and publication of the journals. We confidently claim to have demonstrated the need for a journal of this nature and members can now look to its regular annual (autumn) production.

It is planned that future volumes will up-date Turkish records for 1976-1980, present a check-list of the birds of Afghanistan, continue to explore the exciting discoveries being made in the migration of raptors through the Middle East and present papers on all aspects of ornithology in the area. Members are once again urged to consider what contribution they can make to this flow of material.

In this present number we are proud to present the paper by Steen Christensen and his friends: The Spring Migration of Raptors in Southern Israel and Sinai. The wealth of material presented reflecting the dedication of the observers to their task, excites the imagination and this paper will surely rest as the definitive exposition of the subject for many years to come. The subject is interestingly supplemented by the paper on the autumn migration in the Gulf of Suez area by Peter Meininger and his associates. We welcome the two papers on Egypt, an area that has been much neglected in the past and we hope that further contributions on Egypt will be forthcoming. The paper on Dunn's Lark *Eremalauda dunnii* by Phil Round and Terry Walsh will, we hope, help many observers who have sought information on this intriguing species. The paper on passerines at the Belen Pass by Bill Sutherland and Duncan Brooks extends the picture of the migration in that part of Turkey presented in *Sandgrouse No 2* and together with Simon Albrecht's note on the Red-breasted Flycatcher *Ficedula parva* reflects a continued interest in the birds of Turkey.

The order of the systematic lists and the scientific names used in the papers follow the *List of Recent Holarctic Bird Species* by K. H. Voous (1977) and in general the vernacular names also follow that authority.

I would again wish to place on record my appreciation for editorial help to my wife, Joyce and for practical help, support and advice from all members of the Editorial Committee.

Donald Parr

THE SPRING MIGRATION OF RAPTORS IN SOUTHERN ISRAEL AND SINAI

by

Steen Christensen, Oluf Lou, Morten Müller and Hans Wohlmut

INTRODUCTION

During the last decade the study of the migration of raptors has been intensified in Southern Europe and the Near East, notably at Gibraltar (Bernis 1973), at the Bosphorus (Porter & Willis 1968), in the Lebanon (Cameron *et al.*, 1967; Nielsen & Christensen 1970), and at Eilat in Israel (Safriel 1968). Recent observations from the Suez area are scanty (Tennent 1967) but the raptor migration there has been described several years ago (Goodwin 1949; Mackintosh 1949; Marchant 1941 and Simmons 1951). Finally, a large raptor migration has been discovered recently in northeastern Turkey (O.S.T. 1977).

The difficulty in identifying birds of prey has resulted in much misinterpretation in the past. Thus, at the Bosphorus, prior to 1966, the Spotted Eagle *Aquila clanga* was thought to be numerous and the Steppe Buzzard *Buteo buteo vulpinus* to be almost absent. At Suez and in the Lebanon there has been much confusion over the identification of eagles and buzzards. The large spring migration of eagles at Eilat was thought to belong to *Aquila pomarina/clanga* but the vast majority are in fact Steppe Eagles *Aquila nipalensis*.*

The paper by Safriel describes the raptor migration at Eilat in spring and autumn. Unfortunately, he gives no totals which comes as no surprise today. The numbers involved in the spring passage at Eilat are so large, that it takes years to study and outline it in detail. This paper attempts to give an account of the spring migration during the period 1969-1980, at Eilat. Particular attention is drawn to 1976-1980, and most especially 1977, when the coverage was better than ever before, though not completely satisfactory. Moreover, we include some scattered spring observations from southern Sinai, north west Negev and from the Dead Sea and discuss these in relation to the migration at Eilat. *Figure 1* shows the observation areas mentioned in the text.

THE MIGRATION AT EILAT

Methods

During the period 1969-74 the observations at Eilat were rather a result of occasional observations on 'good days' than a result of continuous daily observations from one or more observation posts. In 1975 and 1978, daily observations were carried out at one or two posts over a limited period. In 1976-77 the observation period was extended to cover almost the whole spring season. Prior to 1977, most observations were made from Elot Kibbutz, from Eilat town and from the slopes between Eilat and a military area west of the town. Observations were also made from the coastal mountains of Sinai, south to Coral Island, 13 km. S.W. of Eilat.

In 1977, the main observation post was situated c. 7 km. W.N.W. of Eilat as in 1976, but after 1 April, when permission was given to carry out observations within the military area, the observation post was removed to a mountain peak, 634 metres above sea level on the edge of the Negev Plateau at Ein Netafim. Although only 1 km. W.S.W. of the former observation post, it was possible to overlook a much larger area; the Moon Valley to the north and south west and the Gulf of Aqaba to the south east. This proved to be most rewarding. As the migration normally shifted eastwards in the late morning, the observation post was removed to a place near a military camp some 4 km. west of Eilat, but regular observations were also carried out near Hotel Laromme, c. 7 km. S.W. of Eilat, and at Coral Island.

*Steppe Eagle is the name given to the migratory *nipalensis* group of sub-species of *Aquila rapax* (Cramp & Simmonds 1980). In this paper it is treated as specifically distinct and classified as *Aquila nipalensis*.—Ed.

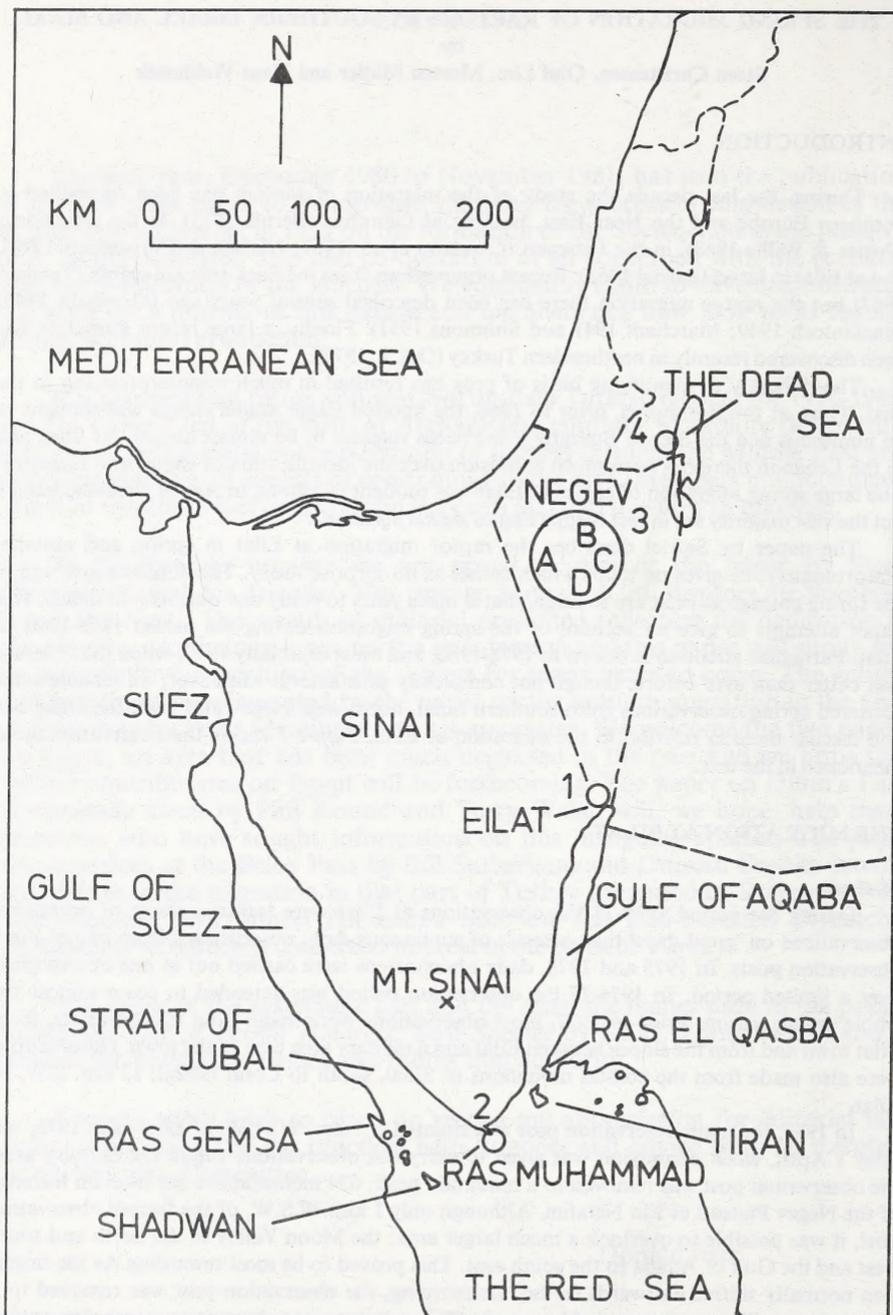


Figure 1. Map of Israel and Sinai. The observation areas:- 1. Eilat, 2. Ras Muhammad, 3. N.W. Negev (A=Nitsana, B=Shivta, C=Yeroham and D=Ein Avdat, shown approximately) and 4. The Dead Sea (Ein Gedi).

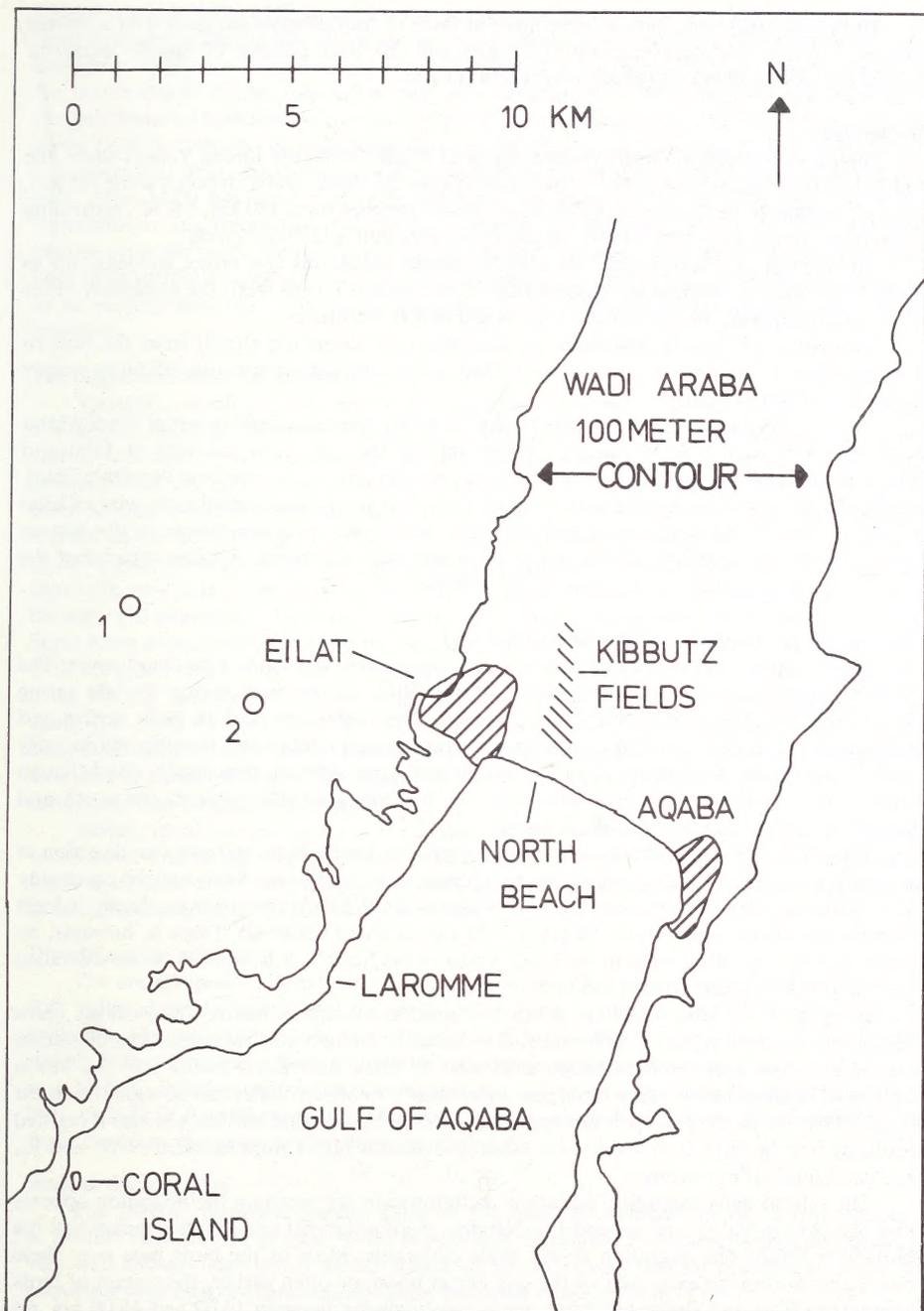


Figure 2. Map of the Eilat area showing main localities mentioned in the text.
 1=Main observation post at Ein Netafim, 634 metres above sea level.
 2=Secondary observation post. c. 350 metres above sea level.

In 1979-80 daily observations were made at three or four observation posts over a limited period, covering the main migration of eagles and the peak passage of Steppe Buzzards. *Figure 2* shows the important observation posts at Eilat.

Topography

Eilat town is situated on the western slopes of Wadi Araba (the Jordan Valley) where the valley and the head of the Gulf of Aqaba meet (*Figure 2*). Wadi Araba stretches some 180 km. N.N.E., ending in the Dead Sea. The Gulf of Aqaba stretches some 180 km. S.S.W., separating Sinai from Jordan and Saudi Arabia. At most places the gulf is 15-20 km. wide.

To the east of Wadi Araba, the high Jordanese mountains rise rather suddenly up to 1,000-1,200 metres, forming the eastern edge of the valley. To the west, the somewhat lower bordering mountains rise less abruptly to a height of 600-700 metres.

Southern Sinai is very mountainous, the mountains extending almost from the west to the east coast. From Dahab in the south to Eilat in the north, the mountains fall fairly steeply towards the Gulf of Aqaba.

Between Eilat and Yotvata (40 km. N.N.E. of Eilat), the sandy semi-desert of Wadi Araba is covered with scattered low bushes, broken only by the fertile kibbutz-fields at Eilat and Yotvata. The kibbutz-fields at Eilat consist of date-palm groves, lucerne- and vegetable-fields, divided by hedges of eucalyptus and tamerisk trees. The mountains immediately west of Eilat consist of barren and broken rocky country with very little or no vegetation. In the bottom of the wadis only scattered bushes and a few acacia trees are found. A fuller account of the topography and vegetation is found in Safriel (1968).

The weather and the general migration pattern

Most days at Eilat are normally warm and sunny with very little or no cloud cover. The daytime temperature lies usually between 20 and 30°C. in the early spring. In late spring temperatures of about 40°C. are quite common. The nights are cold in early spring and temperatures between 5 and 10°C. may occur. Rain occurs seldom and then mainly in early spring. From early April onwards rain is exceptional. The visibility is normally good though during the warmer periods heat-waves blur the horizon, especially towards the north and north east over the super-heated Wadi Araba.

The winds are rather changeable in the region, frequently blowing from one direction at ground level and from another direction at a higher altitude; this has been noticed on cloudy days. While a fresh northeasterly may blow down the Wadi Araba (near sea-level), a fresh westerly may blow in the Moon Valley (c. 650 metres above sea-level). There is, however, no doubt that the prevailing wind in the Wadi Araba blows from N.N.E. to N.E. A more detailed account of the weather is found in Safriel (1968).

Irrespective of wind direction, a heavy migration of raptors nearly always takes place somewhere over the region. The problem is to locate it. In light northeasterlies, the migration can be observed over the mountains north west of Eilat, near Ein Netafim and the Moon Valley. In southeasterlies many birds pass more west into Moon Valley but in westerlies most birds follow the coast. The birds are apparently drifted by the wind but there is also a marked tendency for the birds to head into the wind, provided it blows from between N.W. and E., and particularly if it is strong.

The typical daily migration pattern is as follows: in the morning the migration appears first over Moon Valley and around Ein Netafim. As the thermal upcurrents develop and the birds gain height, the migration slowly shifts eastwards. Most of the birds pass over these mountains during the early part of the day but at noon, or often earlier, the stream of birds approaches Eilat and the coast. After noon, nearly always between 13.00 and 15.00 hrs. no migration is visible over the mountains or Eilat. This may be due to the height of the migration during the hottest time of the day, but observations in 1977 revealed that very large numbers of raptors cross the Gulf of Aqaba in its northernmost part, often near Coral Island. These migrations have always been seen in the afternoon and these birds apparently do not reach Eilat at all. It appears that this sea-crossing takes place when the thermals are strongest.

Clearly, the coast-line of Sinai does not have the same leading effect in the afternoon when the birds fly highest. During late afternoon, usually between 15.00-16.00 hrs., the raptor migration reappears over the mountains near Ein Netafim and in the Moon Valley, or over Eilat and the North Beach. At this time of the day, large numbers have been observed coming in from the gulf from a southeasterly direction, passing over Coral Island or nearby and continuing either N.N.W. towards the mountains near Ein Netafim or towards Eilat, following the coast. It appears that when the thermal upcurrents slacken, the birds are more reluctant to cross the gulf. After 16.00 hrs. until shortly before dusk, the main stream of birds passes over the mountains or, less frequently, over the town of Eilat and the North Beach. This is the typical picture on a day with winds between north and east. In fresh southeasterlies the birds tend both to be drifted westward and to cross the northernmost part of the gulf or the North Beach in an easterly direction, thus facing the wind. In fresh westerlies the picture seems to be reversed.

The height and time of the migration

Typically, roosting birds from the previous day start to move between 06.00 and 07.00 hrs. around Ein Netafim. However, Black Kites *Milvus migrans*, Honey Buzzards *Pernis apivorus* and Levant Sparrowhawks *Accipiter brevipes* sometimes start earlier. In active flight most species follow the valley bottoms or their ridges until thermal upcurrents enable them to soar, often around mountain tops. As the thermals develop, the height of the migration increases rapidly and at 09.00-10.00 hrs. the birds may fly c. 500-1,000 metres above the mountains (1,200-1,700 metres above sea level) though, on windy days, they frequently fly lower. On calm days with very little or no wind, the birds fly very high at noon, visible sometimes only as dots through x10 binoculars. They are then probably flying at least 2,000 metres above sea level. Some birds undoubtedly fly above the visible range, whether they pass over Eilat or across the Gulf of Aqaba south of the town. Typically, the birds lose height at 15.00-16.00 hrs., probably when thermal upcurrents are less strong. This coincides with the time when the birds come in south east from the gulf. Nevertheless, many birds may still migrate at a very high altitude since large numbers have been observed only through binoculars. After 17.00 hrs. most birds normally fly somewhat lower. The migration ceases about 17.30-18.00 hrs. but Black Kites may continue at least to dusk or even later.

Indeed, there is some variation in the flight-height within the different species and it also varies according to the time of spring. In February and early March, the migration of eagles tends to be somewhat lower and to be more coast-bound than later, when the eagles often fly at an incredible height, and are less coast-bound.

Direction of the migration

The main migration direction is N.E., irrespective of the cross-points at the gulf or in the Rift Valley. Safriel suggests that the birds follow Wadi Araba in its N.-N.E. direction but evidently, the vast majority do cross the Gulf of Aqaba/Wadi Araba. In the morning and shortly before dusk many birds follow the mountains bordering the western edge of the valley in a N.-N.E. direction but during the warmer part of the day, the birds almost invariably fly N.E. or E.N.E. Exceptions to this rule occur mainly on days with fresh cross-winds but the flight direction also varies a little according to species.

Scale of the migration

The raptor migration around Eilat is the heaviest recorded in the world, totalling c. 764,000 birds in 1977 (Figure 3). We believe that the relative abundance within the species is very well known today but at the same time we are convinced, that the totals of most species migrating over Eilat are considerably larger than even those found in 1977.

In 1977, the observations started on 20 February and stopped on 17 May. The start of the observation period was determined in the light of experience in 1974 and 1976 but unfortunately the eagle migration was already at its peak when the observations started. Similarly, the peak migration of Honey Buzzards was not over when the observations stopped since the largest number of birds on a single day appeared on 16 May. Moreover, observations were not

TABLE I. DAILY TOTALS OF RAPTOR MIGRATION AT EILAT, SPRING 1977

	FEBRUARY									MARCH				
	20	21	22	23	24	25	26	27	28	1	2	3	4	5
<i>Pernis apivorus</i>														
<i>Milvus migrans</i>										2	2			4
<i>Neophron percnopterus</i>				5	2	5	9	1	2	8		4	9	2
<i>Circus gallicus</i>	10	10	3	5	8	6	4		1	4	1			
<i>Circus aeruginosus</i>														
<i>Accipiter nisus</i>												1		
<i>Accipiter brevipes</i>														
<i>Accipiter spp.</i>			1											
<i>Buteo buteo</i>	13	3	3	17	5	12	8	6	3	7	13	18		9
<i>Buteo/Pernis/Milvus.</i>			7	2	8	8	1							
<i>Aquila nipalensis</i>	552	2,829	661	1,561	1,243	2,575	230	38	148	690	374	267	127	16
<i>Aquila heliaca</i>	3	7		1	7	11	2			3				
<i>Aquila spp.</i>	444	1,413	252	569	664	803	94		111	421	6	621	211	92
<i>Hieraetus pennatus</i>														
<i>Pandion haliaetus</i>	1										1		1	
<i>Falconiformes spp.</i>		1	1	54		33	2							
TOTAL	1,023	4,275	930	2,214	1,937	3,453	350	45	265	1,135	397	912	348	123

	MARCH									APRIL				
	23	24	25	26	27	28	29	30	31	1	2	3	4	5
<i>Pernis apivorus</i>														
<i>Milvus migrans</i>	890	625	2,120	2,489	94	1,004	355	1,753	943	1,283	1,100	592	106	162
<i>Neophron percnopterus</i>		2	14	15		22	10	42	31	23	24	6	1	6
<i>Circus gallicus</i>	7	1		18		6	1	2	16	5	4	5		
<i>Circus aeruginosus</i>		1	3	2		1	1	2	1	2	5	6		8
<i>Accipiter nisus</i>	2	1		3				2	5		1		1	1
<i>Accipiter brevipes</i>								1						
<i>Accipiter spp.</i>	1			1			1	8	21	11	4	6		6
<i>Buteo buteo</i>	4,675	2,666	5,535	12,612	651	7,923	665	10,569	11,988	13,083	7,678	2,668	1,337	7,917
<i>Buteo/Pernis/Milvus.</i>	1,037		1,442	2,656	263	999	258	1,024	3,857	3,110	799	593	23	782
<i>Aquila nipalensis</i>	98	29	61	159	9	404	30	81	210	85	221	212	10	1
<i>Aquila heliaca</i>		2	2	5		3			1	2	5	3		
<i>Aquila spp.</i>	17	13	18	16	1	39	5	19	143	36	52	39	1	11
<i>Hieraetus pennatus</i>	1	1	6	9		8	1	1	6		9	3	1	1
<i>Pandion haliaetus</i>				3		1		1	11	4			2	4
<i>Falconiformes spp.</i>				1			3	2	1	15		1		
TOTAL	6,728	3,341	9,201	17,989	1,018	10,410	1,330	13,507	17,234	17,659	9,902	4,134	1,482	8,899

	APRIL								MAY					
	23	24	25	26	27	28	29	30	1	2	3	4	5	6
<i>Pernis apivorus</i>	4	11	8	767	3	672	612	630	1,696	10,927	17,077	6,959	1,927	3,014
<i>Milvus migrans</i>	8	4		118		18	1	16	50	106	19	3	7	4
<i>Neophron percnopterus</i>		1		26	1	7	2	1		17	10	18	1	4
<i>Circus gallicus</i>		1		3	1									
<i>Circus aeruginosus</i>	6	2		1						2				1
<i>Accipiter nisus</i>						3								
<i>Accipiter brevipes</i>	3	340	701	1,182	20	40	5	19		21	3	1	1	
<i>Accipiter spp.</i>	8	15	5	11	2	49	9	14	50	33	13	8	3	3
<i>Buteo buteo</i>	58	336	114	4,856	66	115	23	616	2,095	189	39	73	42	25
<i>Buteo/Pernis/Milvus</i>		3		1,691	46	1,430	46	1,120	2,935	7,576	21,582	1,795	1,319	2,564
<i>Aquila nipalensis</i>	12	19		29	2	8	1				3			
<i>Aquila heliaca</i>														
<i>Aquila spp.</i>			2	18		6	5	3	3	6				
<i>Hieraetus pennatus</i>		5	1	10	2	2		6	1	3	2	1	2	1
<i>Pandion haliaetus</i>		2		3						1	2	1		
<i>Falconiformes spp.</i>			25	145		29			20	105				6
TOTAL	99	739	856	8,860	143	2,379	706	2,426	6,850	18,986	38,750	8,859	3,302	5,622

TABLE I (continued)

MARCH																		
6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22		
	6	48	4	47	7	12	6	139	170	75	296	332	21	802	1,270	1,612		
1	7	12	14	4	4	10		30	39	21	27	3	4	2	14	6		
		1	1	1	2	3	1	2	4	19	1	3	3	3	20	3		
				2			1	7			1	1	1	2	2	1		
			56	180	277	181	145	658	1,249	777	2,294	433	398	2,846	2,873	3,138		
			2	2	16	382	491	477	870	380	70	60	164	525	438			
178	143	501	359	796	235	392	136	477	870	380	70	27	81	97	294	149		
1	2			2	2	2		6	4	1	1		3		1			
		34	257	80	341	88	8	161	413	261	136	106	101	24	182	36		
				1				4	4	2	1				2			
					7	17		46	344	84	17	1			1			
														45	3	42		
207	179	596	691	1,115	875	721	297	1,908	3,588	1,620	3,540	966	776	4,346	5,103	4,987		
APRIL																		
6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22		
										1	6	8	15	68	46	30		
414	1,306	1,071	1,595	856	361					251	281	126	111	597	384	560		
15	10	21	25	35	3					2	17	1	1	50	23	22		
1	3	6	6	4	5						1	1		2	2			
1	5	3	8	7						2	2	1	3	9	7			
	5	20	9	18	11					1	31	9	6	8	8	6		
	1		2	60							128	159	486	2,556	215	1		
26	26	25	225	75	15					162	70	55	25	239	53	31		
11,834	11,275	32,026	51,562	28,193	8,332					11,415	8,986	6,298	3,248	15,048	9,119	4,021		
921	2,148	4,689	3,031	3,304	1,516					899	2,615	512	1,336	5,907	3,656	3,687		
105	29	174	85	204	146					12	13	23	4	89	149	63		
		7	4	2														
5	9	98	151	122	61					5	4	4	3	118	53	63		
	4	6	16	9	3					5	5	3	2	17	7	1		
9	8	23	20	2	1					4	1	1	2	1	1	3		
93	3,941	3,443		1						1	1		5		1	64		
13,424	18,770	41,612	56,739	32,892	10,454					12,760	12,161	7,201	5,247	24,709	13,724	8,552		
MAY																		
7	8	9	10	11	12	13	14	15	16	17	SUMMARY OF DAILY TOTALS							
17,227	27,418	27,812	35,573	2,270	6,396	5,056	7,816	5,281	36,738	9,884	<i>Pernis apivorus</i>						225,952	
4	5	37	65		3	1			1	10	<i>Milvus migrans</i>						26,770	
9		3	8	1	1	2	1	1	4	4	<i>Neophron percnopterus</i>						802	
2	2	3	1				1	1	2	3	<i>Circus gallicus</i>						220	
	2	1									<i>Circus aeruginosus</i>						125	
3	6	2	2								<i>Accipiter nisus</i>						155	
21	13	8	4								<i>Accipiter brevipes</i>						5,958	
39	16	33	23	1	2	1	2	1	18		<i>Accipiter spp.</i>						1,360	
2,367	8,092	9,907	7,120	1,201	1,203	319			10,425	12,660	<i>Buteo buteo</i>						315,767	
									2		<i>Buteo/Pernis/Milvus.</i>						149,264	
											<i>Aquila nipalensis</i>						19,288	
											<i>Aquila heliaca</i>						95	
1					2	1			1		<i>Aquila spp.</i>						9,083	
2	1								1		<i>Hieraaetus pennatus</i>						175	
1			10						1		<i>Pandion haliaetus</i>						122	
									1		<i>Falconiformes spp.</i>						8,601	
19,676	35,555	37,806	42,798	3,473	7,607	5,381	7,820	5,286	47,203	22,554	TOTAL					763,737		

Species totalling less than 75 birds are not included. For these species, see text.

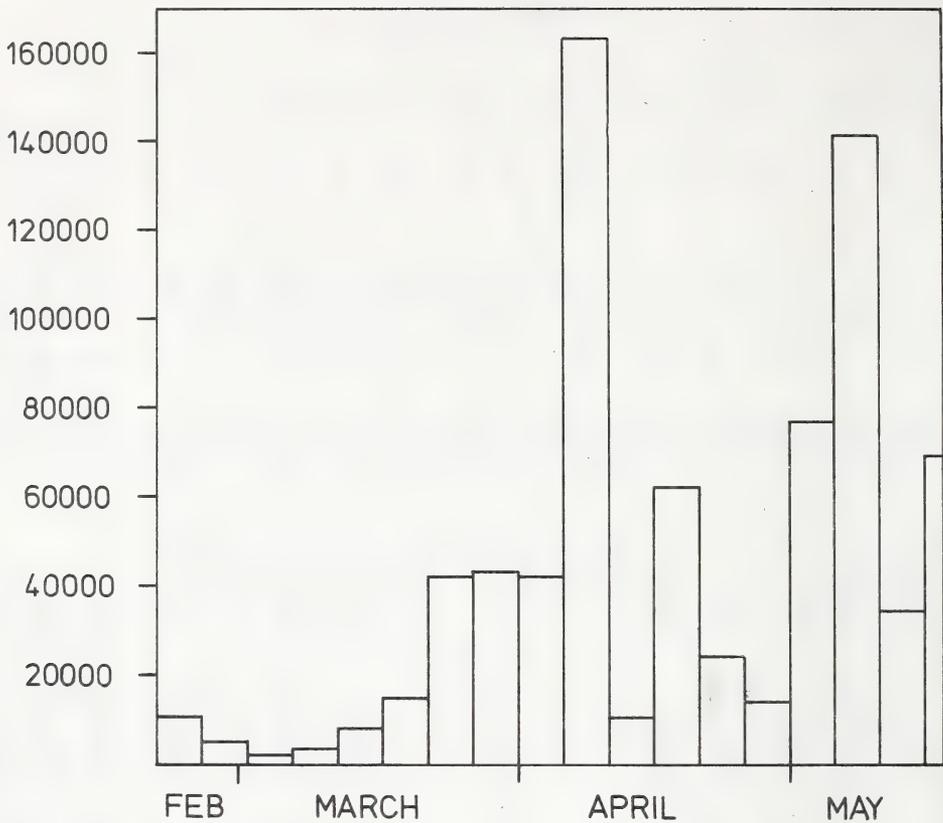


Figure 3. The total migration of birds of prey at Eilat, 20 February-17 May 1977 in five day periods.

allowed within the military area prior to 1 April, for which reason very large numbers of eagles, kites and buzzards were missed. Furthermore, regular observations during most afternoons, at or near Coral Island, did not take place until 20 April when the migration pattern became more obvious. Very large numbers were probably missed in this area as well. The large numbers of sea-crossing raptors were often coming in from the south east at Coral Island, indicating that the birds had left Sinai a little south of Coral Island. These migrations held some of the largest numbers of birds, the numbers passing per hour often totalling 5,000-10,000 birds in the peak periods of the commonest species, sometimes more. As mentioned previously, the migration was usually lost about noon and seldom found again before 15.00-16.00 hrs. Therefore, large numbers undoubtedly passed over unseen. If the migration could be traced by radar and followed in the early afternoon, no doubt more raptors could be counted.

If a conclusion could be drawn, it is that very large numbers were missed even in 1977, and that the raptor migration over Sinai runs perhaps into the millions every spring.

SYSTEMATIC LIST, EILAT

The daily totals of the commoner species in 1977 are listed in TABLE 1. The only publication dealing with raptor migration at Eilat is the paper by Safrieli (1968) and comparison is made species for species with this publication. Meinertzhagen (1954) published a few notes from Eilat but he only visited the area on two days in April 1953.

Unfortunately, one of the original note-books was lost before this paper was written. The book covered the period 27 April-17 May 1977 and contained much valuable information. In substitution the information from this period has been taken from daily forms, dividing the migration into three-hour periods. This regrettable loss makes it impossible to present a diagram of birds per hour of the Honey Buzzard passage and prevents us from giving exact numbers of adult and juvenile Egyptian Vultures *Neophron percnopterus*. The diagrams showing birds per hour for the remaining species are based on information from the period 20 February-26 April.

Periods of observation

1969: 39 days between 27 February-29 April.

1970: 64 days between 21 March-31 May.

1971: 6 days between 4-13 April.

1972: 25-28 March.

1973: 30 March-2 April.

1974: 55 days between 26 February-21 April.

1975: 28 March-6 April.

1976: 9 February-6 May.

1977: 20 February-17 May.

1978: 7-13 March.

1979: 12 February-31 March.

1980: 25 February-22 March, 25-31 March and 12-22 April.

Pernis apivorus

Honey Buzzard

1970: 3,371 recorded between 28 April-31 May.

1976: 3,586 between 20 April-6 May. On 6 May 10,841 *Buteo/Pernis* were recorded. We are convinced in view of the date that the vast majority were Honey Buzzards.

1977: 226,060 between 16 April-17 May (Figure 4). From 2 May (when 189 Steppe Buzzards and 10,927 Honey Buzzards were identified) to 17 May, 88,130 distant *Buteo/Pernis* were recorded, and there can be little doubt that the vast majority were Honey Buzzards and that the actual number seen passing in 1977 was well over 300,000.

1980: Four on 22 April, the last day of observation.

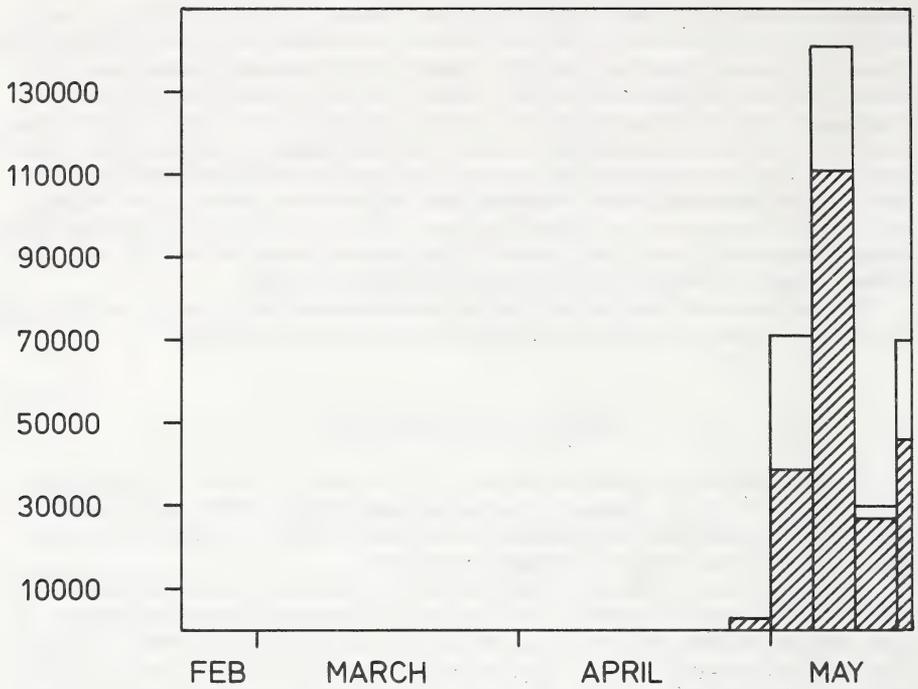


Figure 4. Honey Buzzard—*Pernis apivorus*, spring 1977, in five day periods.

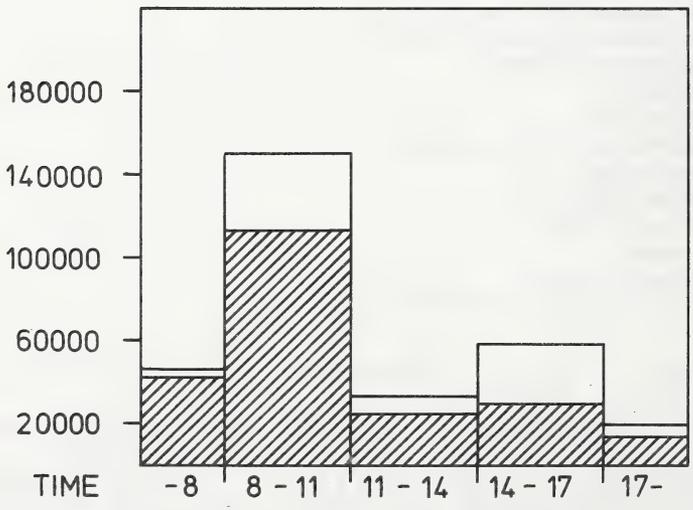


Figure 5. Honey Buzzard—*Pernis apivorus*. Birds per three hour intervals, spring 1977

Safriel (1968) mentions the Honey Buzzard from the second week of April occurring only with "1-5 birds during the week". However, the "considerable passage" of Steppe Buzzards that he mentions in the first three weeks of May were, in our opinion, undoubtedly Honey Buzzards, as the migration of Steppe Buzzards has since been shown to be over by that time.

The Honey Buzzard is an abundant spring migrant at Eilat, occurring from mid-April to the end of May, the migration of juveniles hatched the previous year possibly extending to early June. The peak passage takes place in mid-May. In 1977, the adult birds peaked in the second week of May, and prior to 10 May the migration consisted almost entirely of adults. The juveniles peaked on 16-17 May when they constituted almost 100 per cent of the passage. Unfortunately, observations had to stop on 17 May.

The Honey Buzzard starts to migrate very early in the morning, usually between 05.30-06.00 hrs. (Figure 5) but on chilly mornings the start may be delayed one or two hours. In 1977, huge movements were often seen in the early morning, e.g. on the 10 May when c. 17,000 birds flew N.N.E. before 08.00 hrs. (In 1977, there was a tendency for adults to start earlier than juveniles.) These early birds moved in active flight (flapping and gliding with no soaring) through the gorges and wadis in the Ein Netafim-Moon Valley area, heading N.N.E. As temperatures rose and thermals became stronger, the birds were found to gain height and on warm mornings the thermal effect is so strong at about 08.00 hrs., that birds were able to glide most of the time, interrupted only by short periods of soaring and active flight. Later in the morning, when they were flying at an altitude of 1,000-1,500 metres above sea level, the migration shifted eastwards and the direction changed from N.N.E. to N.E. or E.N.E. At this time the birds crossed the Wadi Araba at Eilat or a little north of the town. At noon, the birds flew so high, that the passage was difficult to follow from the ground. Between 13.00-15.00 hrs. relatively small passages are seen at Eilat, and even smaller numbers in the mountains. It would appear that the birds cross the Gulf of Aqaba somewhere south of Eilat, probably south of Coral Island. In May 1977, large migrations of Honey Buzzards were observed in most late afternoons from Coral Island, from about 15.30-16.00 hrs. They usually flew very high and/or far over the gulf, crossing it in northeasterly direction. About an hour later, the sea-crossing ceased and the migration changed direction. Flocks started to cross over or near Coral Island, coming from south east or south and heading north, reappearing in the mountains. Shortly before sunset the birds settled on the rocks to roost for the night.

The total of c. 300,000 Honey Buzzards in 1977 probably does not (as with the Steppe Buzzard) represent the true scale of the migration. Large numbers undoubtedly passed unseen in the early afternoon and it is reasonable to believe that the spring migration of Honey Buzzard in fact is considerably larger than the 1977 figures suggest. The largest autumn count from the Bosphorus in the period 1966-73 was c. 26,000 (M. Beaman, R. F. Porter *pers. comm.*). Although the passage at the Bosphorus may turn out to be larger with extended coverage, it is obvious that the spring passage at Eilat consists largely of non-European birds on their way to the breeding grounds in U.S.S.R. probably via the Caucasus. There can be little doubt that the Sinai-Eilat route is one of its main routes in the spring.

Whistler (1916) saw 130 presumed Honey Buzzards on 8 May crossing the Gulf of Suez to Sinai, and Marchant (1941) saw a large passage of "*Buteo* spp." on 7 May at Ras Jemsah north of Hurghada, heading towards Sinai. According to the dates, both observations probably refer to Honey Buzzards.

Elanus caeruleus

Black-winged Kite

1977: One seen just west of Eilat on 9 April was probably the first record of this species in Israel.

Milvus migrans

Black Kite

1969: 8,587 between 27 February-29 April.

1970: 10,538 between 21 March-31 May.

1971: 2,141 between 4-14 April.

1972: 3,185 between 25 March-2 April.

1973: 2,977 between 30 March-2 April.

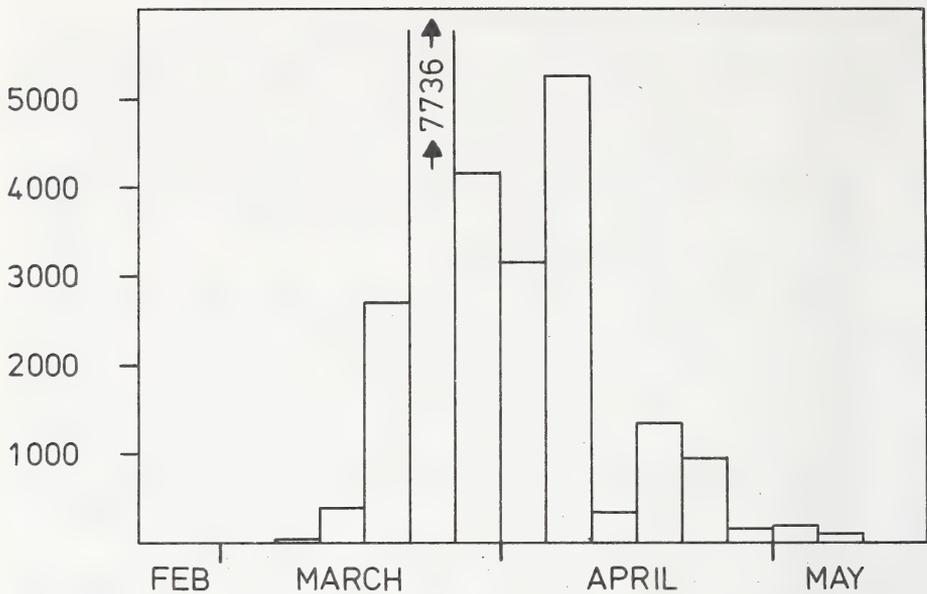


Figure 6. Black Kite—*Milvus migrans*, spring 1977. In five day periods.

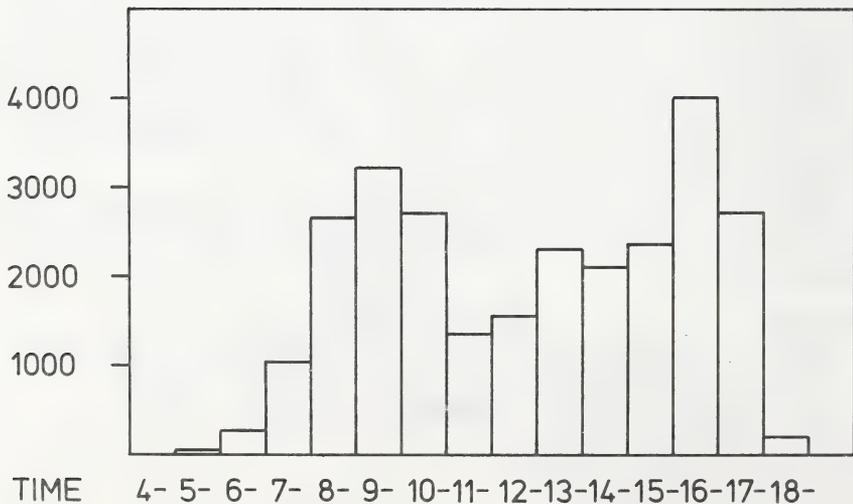


Figure 7. Black Kite—*Milvus migrans*. Birds per hour, spring 1977.

- 1974:** 7,154 between 26 February-21 April.
1975: 8,934 between 27 March-6 April.
1976: 16,398 between 8 February-6 May.
1977: 26,727 between 21 February-17 May (*Figure 6*). Peak days were 25-26 March with 2,120 and 2,409 kites respectively.
1978: 25 between 7-13 March.
1979: 13,470 between 22 February-30 March. Peak days were 2,340 on 20 March, 3,800 on 28 March and 4,145 on 29 March.
1980: 36,680 between 26 February-5 April. Peak days were 20,450 on 29 March and 4,580 on 30 March.

According to Safriel (1968) the Black Kite is an abundant spring migrant; this we can confirm. It occurs between mid-February and late May, mainly mid-March to mid-April, peaking in late March-early April (*Figure 6*).

Ageing this species especially at a distance is not easy and no attempt to do so was made.

Together with the Honey Buzzard, the Black Kite is the first raptor to start migrating in the morning and the last to roost in the evening (*Figure 7*). During the peak passage, the kibbutz-fields often hold 200-400 Black Kites during the night, the birds roosting mainly in the big eucalyptus trees. At sunrise they leave, some for the old garbage dump north of the kibbutz whilst others migrate N.N.E. with the first birds coming from the south. During the day there is a constant exchange of migrating and roosting birds in the kibbutz or at the dump.

In the mountains the Black Kites leave very early in the morning, heading north-north east in active and gliding flight. Later in the morning they take a due N.E. course, passing over the Eilat area, usually at a high altitude, and often in company with Steppe Buzzards. In the afternoon, large migrations of kites over Eilat or the mountains are less frequent, and we believe that they cross the Gulf of Aqaba somewhere south of Eilat. Large numbers reappear in the Ein Netafim and Moon Valley area or at Coral Island in late afternoon, often at a very high altitude and sometimes they are hardly visible.

Large flocks of Black Kites have sometimes been observed in the mountains at dusk, heading north-north east. On the 5 May 1977 we recorded only a single kite during the day's observation (the peak migration was over). When watching the first stars on the western sky through telescope in the Moon Valley, three Black Kites suddenly appeared in the telescope. They were heading north-north east in active flight, interrupted by short glides. It seemed to us as if they had just started to migrate and were still trying to gain height. Another three kites were seen before it became too dark for observation. This event took place a few days before full moon. The low wing-loading of this species may enable it to make use of even slight thermals that may still exist after hot days. Obviously, further investigation is necessary, ideally with radar. The only previous record of Black Kites migrating well after sunset comes from northern Iraq where Marchant (1963) saw a passage of kites at Kirkuk in May. The birds were observed at night and were seen against the light of gas-flares.

Neophron percnopterus

Egyptian Vulture

- 1969:** 65 between 28 February-27 April.
1970: 125 between 21 March-21 April.
1973: 55 between 30 March-2 April.
1974: 164 between 27 February-14 April.
1975: 117 between 31 March-7 April.
1976: 307 between 15 February-6 May.
1977: 802 between 21 February-17 May (peak days: 39 on 15 March, 35 on 10 April and 50 on 20 April).
1978: 26 between 7-13 March.
1979: 232 between 19 February-30 March (peak days: 22 on 4 March, 19 on 12 March and 23 on 20 March).
1980: 158 between 26 February-19 April (peak days: 23 on 28 February, 29 on 17 March and 18 on 21 March).

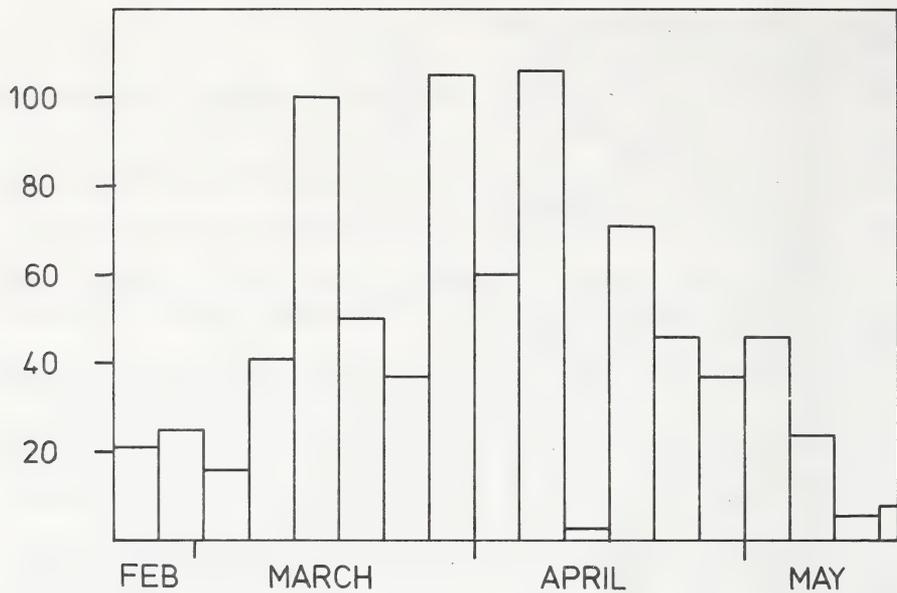


Figure 8. Egyptian Vulture—*Neophron percnopterus*. The migration in 1977 in five day periods.

According to Safriel (1968), moderate numbers pass through in spring which is confirmed by recent investigations. The species is regular from mid-February to mid-May, with most passing during mid-March to mid-April. Adults constitute the majority of the passage. In 1977 (Figure 8), the passage consisted almost exclusively of adults up to mid-April but from 20 April onwards the majority were juveniles. It is generally believed that most juveniles remain in Africa during the summer (Stresemann, in Dementiev *et al.* 1951). However, our observations clearly show that some leave.

Gyps fulvus

Griffon Vulture

1976: 17 between 28 February-20 April.

1977: 22 between 21 February-7 May.

1979: 5 between 16 February-26 March.

1980: 3 between 28 February-21 March.

According to Safriel (1968), vultures appear very early at Eilat, from the fourth week of January onwards. Our observations show that it is a rather scarce spring migrant without a pronounced peak.

Circaetus gallicus

Short-toed Eagle

1969: 12 between 8 March-11 April.

1970: 30 between 21 March-13 May.

1971: 4 between 4-14 April.

1972: 12 on 27 March.

1973: 4 between 31 March-1 April.

1974: 35 between 6 March-13 April.

1975: 19 between 31 March-7 April.

1976: 140 between 11 February-28 April.

1977: 220 between 20 February-27 April (Figure 9).

1979: 79 between 22 February-29 March.

1980: 124 between 26 February-16 April.

According to Safriel (1968), the Short-toed Eagle occurs in small numbers in March and third week of April. Our observations (Figure 9) show that it is relatively scarce, occurring from mid-February (perhaps earlier?) to the end of April. Both in 1976 and 1977, the passage was divided into two main periods: late February, and the latter half of March. Short-toed Eagles were never aged. It was usually recorded singly but small flocks of two to five birds were recorded occasionally.

Circus aeruginosus

Marsh Harrier

1969: 3 between 22 March-27 April.

1970: 73 between 24 March-31 May.

1971: 3 between 4-14 April.

1973: 12 between 30 March-1 April.

1974: 29 between 5 March-13 April.

1975: 4 between 30 March-2 April.

1976: 35 between 12 March-30 April.

1977: 124 between 10 March-16 May.

1979: 17 between 28 February-29 March.

1980: 15 between 29 February-22 April.

Mentioned by Safriel (1968) during the first three weeks of May, in small numbers. We found it to be a regular migrant also in small numbers between late February and late May, mainly in late March and first half of April. Many birds roost in the kibbutz-fields, some for a few hours, others for a day or two. The commonest harrier at Eilat.

Circus cyaneus

Hen Harrier

1977: 1 on 10 March and 1 on 11 March, both females or juveniles. Not recorded by Safriel.

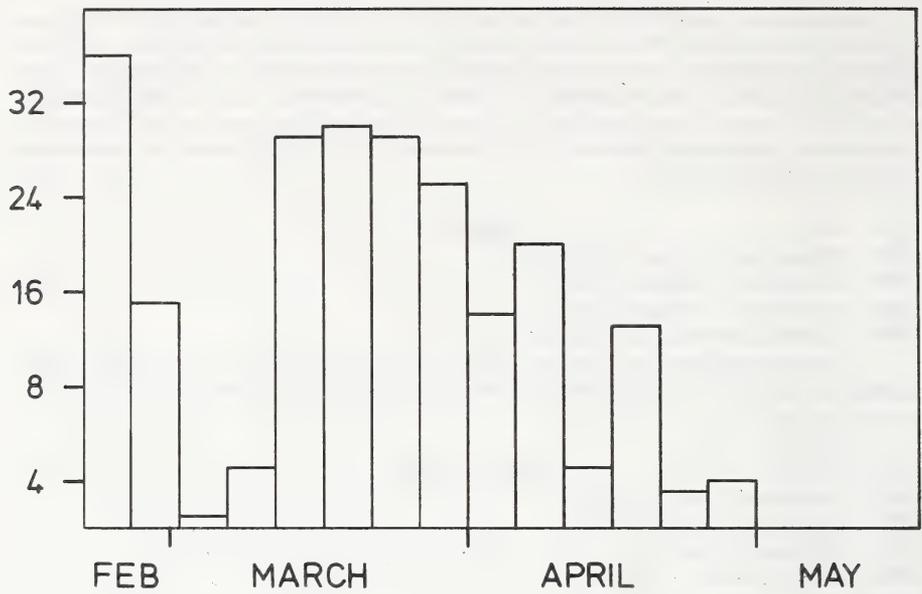


Figure 9. Short-toed Eagle—*Circaetus gallicus*, spring 1977. In five day periods.

Circus macrourus

Pallid Harrier

1969: 1 on 13 March.

1970: 16 between 2 April-13 May.

1971: 1 on 4 April.

1973: 3 on 30 March.

1974: 1 on 30 March.

1975: 1 on 30 March.

1976: 6 between 16 March-3 April.

1977: 7 between 23 March-10 April.

1979: 7 between 19-28 March.

1980: 7 between 17-29 March.

A regular but scarce migrant from mid-March to mid-May, mainly late March-early April. Not recorded by Safriel (1968).

Circus pygargus

Montagu's Harrier

1970: 24 between 3 April-15 May (13 on 14 April).

1971: 1 on 13 April.

1973: 3 between 30 March-1 April.

1974: 1 on 18 April.

1976: 3 between 29 March-22 April.

1977: 7 between 4 April-6 May.

1979: 3 between 20-29 March.

1980: 3 between 12-29 March.

A regular but scarce migrant from late March- to mid-May, mainly in April. Not recorded by Safriel.

Circus macrourus/pygargus

Pallid/Montagu's Harrier

In view of the difficulties in separating 'ringtails' of these two species, we include records of unidentified birds. Judging from the number of males, the two species are equally scarce.

1969: 1 on 11 April.

1970: 17 between 24 March-15 April.

1973: 1 on 1 April.

1974: 33 between 25 March-13 April.

1976: 7 between 24 March-25 April.

1977: 26 between 10 March-7 May.

1979: 4 between 6-20 March.

1980: 10 between 21 March-22 April.

Accipiter gentilis

Goshawk

1971: 1 on 5 April.

1976: 1 on 1 March.

1977: 1 on 1 March.

1979: 1 on 9 March.

Not recorded by Safriel.

Accipiter nisus

Sparrowhawk

1973: 3 between 30 March-2 April.

1974: 18 between 30 March-14 April.

1975: 8 between 3-6 April.

1976: 7 between 17 March-15 April.

1977: 155 between 3 March-9 May, with most birds in first half of April.

1979: 7 between 6-28 March.

1980: 56 between 21 March-22 April.

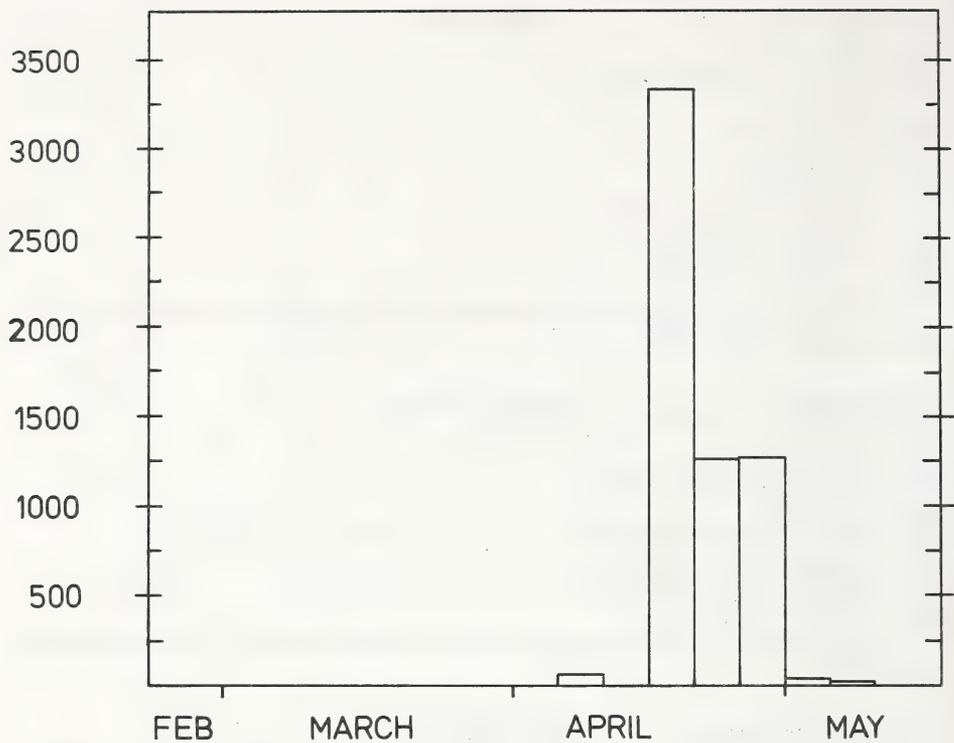


Figure 10. Levant Sparrowhawk—*Accipiter brevipes*, spring 1977. In five day periods.

Not recorded by Safriel (1968). Our records show that it is an annual spring migrant in small numbers from early March to early May, mainly in the first half of April. Migrates singly or with or very few together, never in dense flocks as Levant Sparrowhawks. Contrary to that species, the Sparrowhawk is capable of making larger sea-crossings, thus migrating over a broader front. Moreover, the majority winter north of the Mediterranean and higher numbers than those recorded are unlikely to occur at the latitude of Eilat.

Accipiter brevipes

Levant Sparrowhawk

1969: 25 between 19-27 April.

1970: 305 between 30 March-27 April.

1971: 11 between 4-14 April.

1974: 235 between 26 March-21 April.

1976: 4,432 between 25 March-30 April (peak of 3,159 on 21 April).

1977: 5,958 between 30 March-10 May (peak of 2,558 on 20 April and 1,182 on 26 April).

1980: 993 between 5-21 April with most birds in mid-April.

Conspicuous spring migration was reported from Eilat in 1914 (20 April), 1957 (20 April), 1961 (23 April), 1962 (22 April) and 1964 (23 April) (Safriel 1968). Our observations confirm this conspicuous occurrence and we found it to be regular from late March to early May with a very pronounced peak in the third week of April (*Figure 10*).

The record of 3,159 birds on 21 April 1976 was of birds which had arrived in the late afternoon of the previous day. The birds descended from a great altitude, roosted in the eucalyptus trees and date palm groves in Elot Kibbutz and left the next morning, when the air literally swarmed with departing birds.

The migration pattern and behaviour on passage resembles that described from the Bosphorus (Porter & Willis 1968) and at Harissa in Lebanon (Nielsen & Christensen 1970) in the autumn. In the Near East it has a short and concentrated spring migration, apparently with very little fluctuation from year to year. It dislikes long sea-crossings (e.g. from Turkey to Cyprus in the autumn) though not shorter ones (e.g. across the southern part of the Gulf of Suez in the spring). The Levant Sparrowhawk has a marked preference for forming dense flocks on migration, soaring and gliding in thermal upcurrents, with very short distance between each bird. The behaviour on migration is completely different from that of the Sparrowhawk. Large, dense flocks of *Accipiters* on migration in the Near East, are always Levant Sparrowhawks.

It appears that the largest passage occurs near the coast of the Gulf of Aqaba, and many birds are attracted by the kibbutz-fields.

Buteo buteo vulpinus

Steppe Buzzard

1969: 10,046 between 27 February-29 April.

1970: 14,000 between 21 March-31 May.

1973: 8,783 between 30 March-2 April.

1974: 10,746 between 26 February-14 April.

1975: 42,113 between 27 March-6 April.

1976: 83,723 between 12 February-2 May (15,578 on 3 April and 11,930 on 4 April).

1977: 315,767 between 20 February-16 May (32,026, 51,561 and 28,193 on 8 April, 9 April and 10 April respectively).

1979: 141,515 between 13 February-30 March (20,310, 70,860 and 11,000 on 28 March, 29 March and 30 March respectively).

1980: 206,169 between 26 February-22 April (108,050 on 29 March, 43,400 on 30 March and 13,365 on 5 April).

According to Safriel (1968), this is an abundant spring migrant, occurring mainly March-May with peak numbers in mid-April.

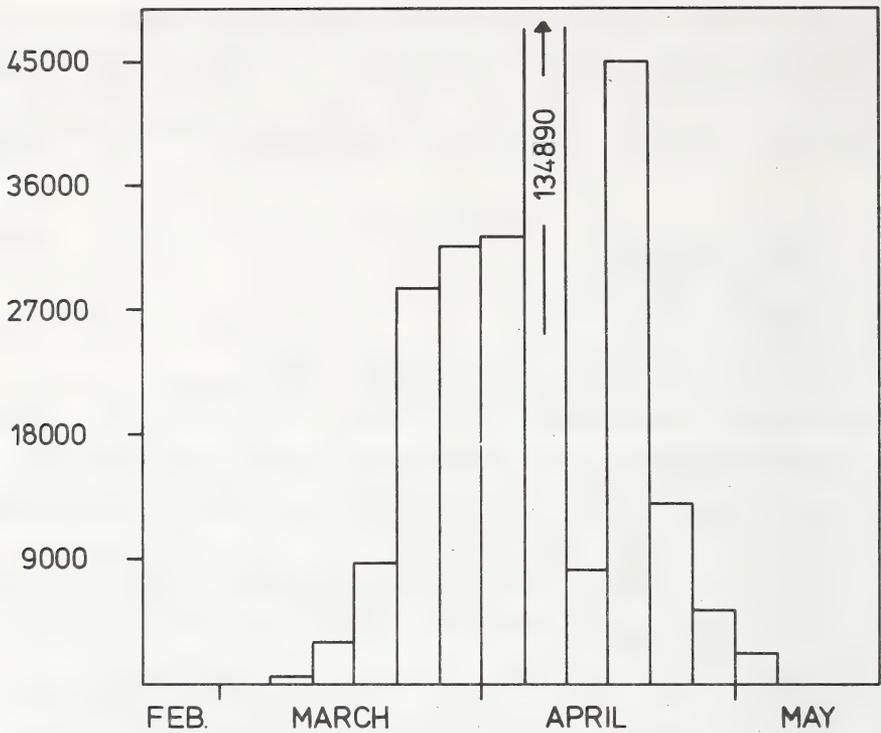


Figure 11. Steppe Buzzard—*Buteo buteo vulpinus*, spring 1977. In five day periods.

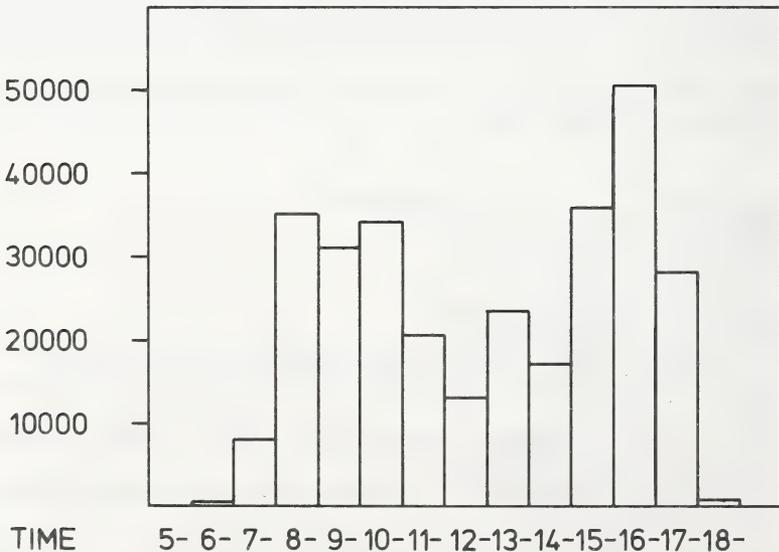


Figure 12. Steppe Buzzard—*Buteo buteo vulpinus*. Birds per hour, spring 1977.

Our observations show that the migration starts in mid-February and continues to late May (according to Safriel (1968) to early June). It is numerous from third week of March and for a month ahead, but only a few birds are seen after the first week of May. The peak migration occurs in the last week of March and the first ten days of April, when many thousands pass every day. (Figure 11).

The start of the passage consists almost exclusively of adult birds, which dominate to mid-April at least. From late April onwards, juveniles usually outnumber adults and those passing in May are almost exclusively juveniles. The enormous numbers of Steppe Buzzards involved and the varying distances they are observed at, complicates an exact investigation of the age-composition.

Adults of all colour phases show a distinct broad black subterminal tail-bar, at least twice as wide as the remaining tail-bars. Some adults of the fox-red phase show an unbarred tail with traces of a subterminal bar. Compared with juveniles, adults show generally a wider, more clear-cut band along the trailing edge of the wings and, when close enough, always cross-banded underwing-coverts and body (if not uniform). Juveniles never show a conspicuous wide subterminal tail-bar. Generally, they have a narrower, less clear-cut dark trailing edge to the wings (if present at all) and longitudinal spots or streaks on the underwing-coverts and body.

From a field identification point of view, three types of adult Steppe Buzzards occur at Eilat: (i) a true *vulpinus*-type resembling Long-legged Buzzard *Buteo rufinus*, called the fox-red type, (ii) a brown grey, or rusty-brown type, rather *buteo*-like in the field and (iii) a blackish-brown type recalling the dark phase of Long-legged Buzzard.

*Glutz et al. (1971) describe three colour phases of the Steppe Buzzard: (i) fox-red phase with underparts finely or coarsely barred fox-red, in the eastern part of its range washed out to almost or completely uniform birds ('ultravulpinus'). (In the field, the underparts and underwing-coverts look more or less uniform and bright brownish-red, and the flight-feathers, especially the primaries, are glistening white below), (ii) a dark phase, varying from brown or rusty-brown to more red-brown with grey, brown or rusty tail, otherwise patterned very like nominate *buteo* and (iii) a medium phase, resembling nominate *buteo* but more ochre or rusty and less whitish in ground-colour below. Frequently more reddish, often with more pronounced reddish tail.*

*The dark and the medium phase are united to the grey/brown *buteo*-like type by us. This seems comprehensive from a field point of view as it resembles the Common Buzzard *Buteo buteo buteo*, though slenderer in build, and, on average, it has less glistening white flight-feathers below than the fox-red birds, especially on the secondaries. The blackish-brown phase is not mentioned by Glutz et al., probably because it has never been recorded in Central Europe. In the field it is usually blackish-brown on the body and underwing-coverts, contrasting strongly with glistening white primaries. See Dementiev et al. (1951), in which the blackish-brown phase is mentioned. (See photographs, centre of book.)*

Exact investigation on the occurrence of the colour phases of Steppe Buzzards at Eilat is complicated by the very large numbers on migration. In 1977, spot checks of adult birds in April revealed that c. 60-70 per cent of the passage was of the fox-red phase, 25-35 per cent was of the grey/brown type (the 'dark' and the medium phase), and a small minority was of the blackish-brown phase. In 1979, spot checks of adult Steppe Buzzards were made on eight days between 1 March-24 April. The results were as follows:—

Date:	1 Mar.	5 Mar.	17 Mar.	20 Mar.	30 Mar.	31 Mar.	1 Apr.	24 Apr.
Numbers checked	23	52	38	200	500	255	139	163
Fox-red	8	19	5	32	170	119	71	68
Grey/brown	13	28	31	165	328	125	60	57
Blackish-brown	1	3	—	2	4	4	3	1
Light (whitish)	1	2	—	1	—	2	—	2
Juveniles	—	—	2	—	8	5	5	35

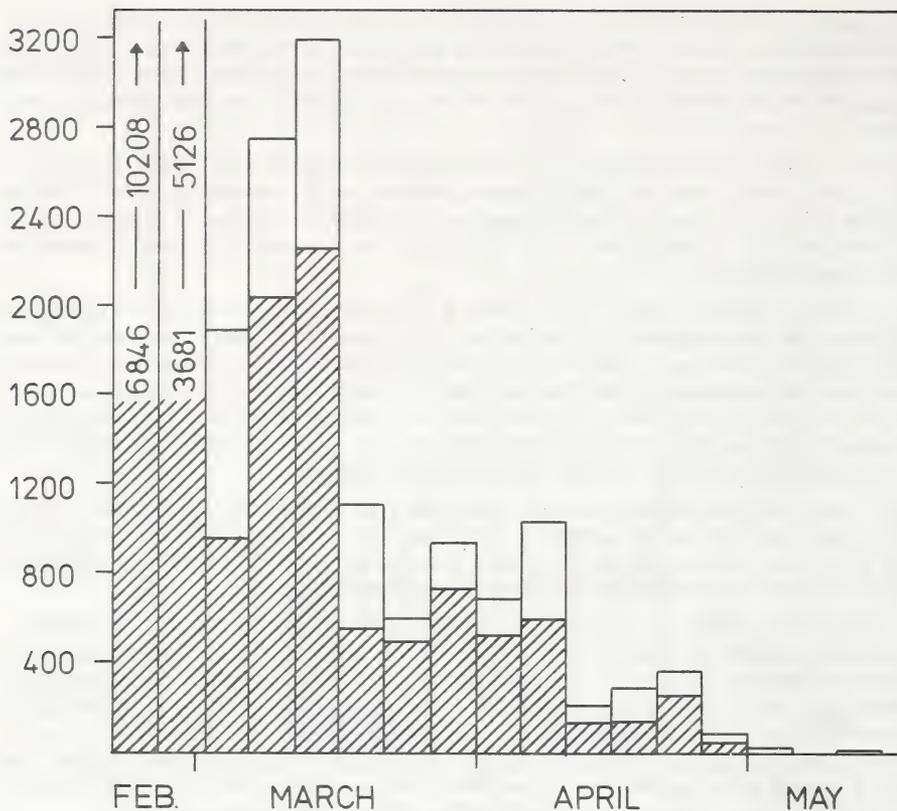


Figure 13. Steppe Eagle —*Aquila nipalensis* (hatched) and *Aquila* spp. (unhatched).
The migration in 1977 in five day periods.

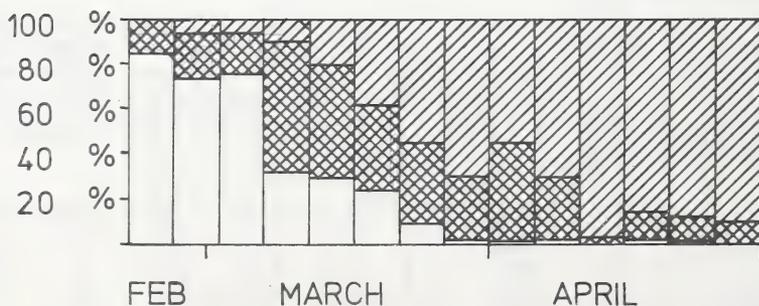


Figure 14. Age-composition of Steppe Eagles—*Aquila nipalensis* in spring 1977. In five day periods. Unhatched=adult, cross-hatched=immature, hatched=juvenile.

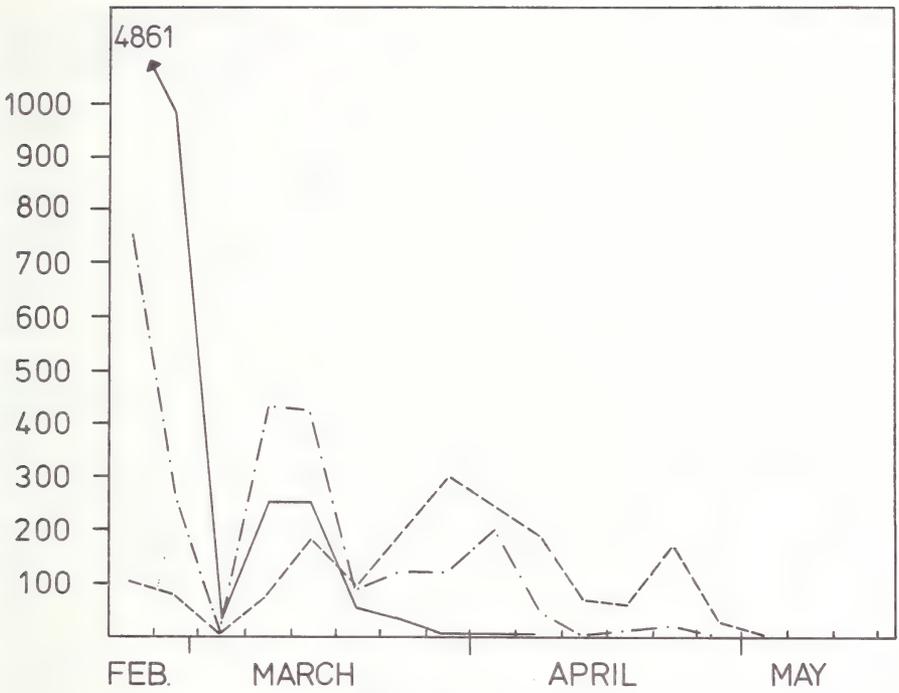


Figure 15. Age-composition of Steppe Eagles—*Aquila nipalensis* in spring 1977. In five day periods. Migration period of adult ———, immature - - - - -, and juvenile - . - . - .

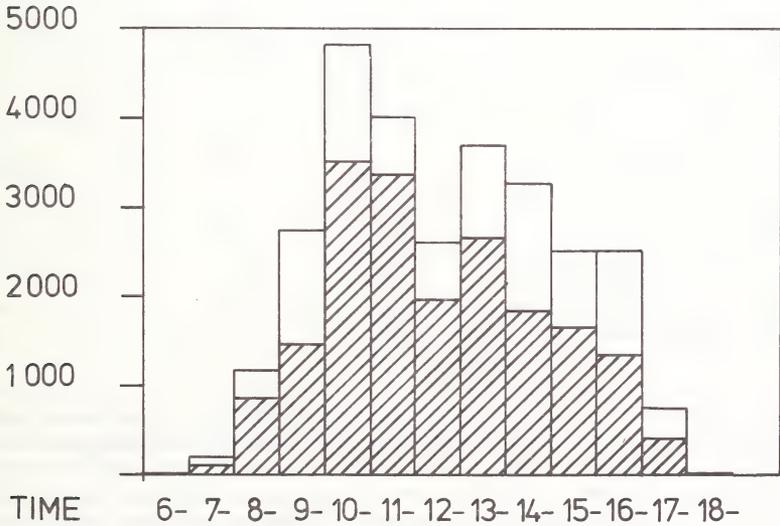


Figure 16. Steppe Eagle—*Aquila nipalensis*. Birds per hour, spring 1977. Hatched=*Aquila nipalensis*, unhatched=*Aquila spp.*

In March 1979 there was a clear dominance of grey/brown *buteo*-like birds. At the onset of April, fox-red birds started to dominate, but not to such an extent as was deduced from checks in April 1977. However, the lack of spot checks in the first three weeks of April 1979 may explain the difference between fox-red birds in 1977 and 1979 (in early April 1975 there is a record of c. 1,200 fox-red birds in one flock!). Note the scarce occurrence of light (whitish) birds and the scarcity of juveniles up to late April.

Simmons (1951) mentioned two types of *Buteo spp.* from Suez: "a grey-brown type recorded occasionally throughout the whole period and a distinctive and most contrasting type occurring not before the end of March when it was not uncommon". There can be little doubt that he refers to the grey/brown and fox-red phase. Simmons's statement, and the spot tests from Eilat may indicate, that fox-red birds are commonest from the start of April when they outnumber the grey/brown phase. Obviously, more thorough investigation of the colour phases in the Steppe Buzzard at Eilat is essential.

On the breeding distribution of the colour phases, Glutz *et al.* state that the dark and the medium phase (here the grey/brown type) are present throughout the whole range of the subspecies, though mainly in the western part (Finland, the Baltics and Western Russia). The fox-red phase ('*ultravulpinus*') is more frequent towards the southeast and appears to dominate in many areas and does not reach the western part of the range of the subspecies (western limit 30°E). Vaurie says, that the blackish-brown phase is more common in *B.b. menetriesi* (largely sedentary) than in *B.b. vulpinus*. Dementiev *et al.* say, that the blackish-brown phase is the rarest of the colour types in *vulpinus*, constituting 7 per cent of the material studied (mentioned from Central Russia, Volga-Ural, and in Siberia from Omsk, Tomsk, Altai, western Sayans and Minusinsk). At Eilat, less than 5 per cent comprised this phase.

According to the distribution of the fox-red and blackish-brown phases in U.S.S.R., as outlined by Glutz *et al.* and Dementiev *et al.*, a large, but yet unknown, proportion of the *vulpinus* passage at Eilat is heading towards U.S.S.R. east of 30°E.

At the Bosphorus, the vast majority of the *Buteo*-passage are of *buteo*-like Steppe Buzzards while true *vulpinus* (fox-red birds) are scarce (Porter & Willis 1968). This is to be expected in consideration of the distribution of the colour phases.

The migration of Steppe Buzzards starts between 07.00-08.00 hrs. sometimes earlier. It is very heavy between 08.00-11.00 hrs. and 15.00-17.00 hrs. (Figure 12). The lower numbers between noon and 15.00 hrs. may result either from the flying height, or the fact that they are crossing the sea south of Eilat, or maybe a combination of both. Both in 1976 and 1977, large migrations were observed crossing the gulf at or just south of Coral Island in the afternoon.

Buteo rufinus

Long-legged Buzzard

1969: 2 on 10 March.

1970: 7 between 21 March-15 April.

1972: 3 on 27 March.

1973: 1 on 31 March.

1974: 10 between 28 March-11 April.

1975: 6 between 2-6 April.

1976: 9 between 14 February-30 March.

1977: 28 between 21st February-22 April.

1979: 39 between 19 February-29 March.

1980: 31 between 27 February-29 March.

Few were identified according to Safrieli (1968). We found that it was a regular but rather scarce migrant in very small numbers from mid-February to late April. This species, particularly when juvenile, is undoubtedly overlooked among the Steppe Buzzards, but flocks of Long-legged Buzzards are not to be expected on migration at Eilat or elsewhere in the Near East. In striking contrast to Eilat is the occurrence of many probable Long-legged Buzzards at Suez in spring 1950 (Simmons 1951). In the light of the passage of *B.b. vulpinus* and *B. rufinus* at Eilat (and in the Negev and at the Dead Sea, for which see page 00) there can be little doubt that Simmons referred to *B.b. vulpinus*.

The blackish-brown phase, which resembles the similar phase in the Steppe Buzzard and easily confused with it, was recorded for the first time by us in 1979, when three adults were observed in mid-late March.

Aquila nipalensis/Aquila spp.

Steppe Eagles and unidentified *Aquila* Eagles

The *Aquila* migration in spring at Eilat has been ascribed to *A. pomarina/clanga* by Safriel (1968), who did not mention *A. nipalensis*, undoubtedly because of the identification problems involved. When our observations began in 1969, these *Aquila* eagles were tentatively identified as *A. pomarina*. As our knowledge increased it became obvious that *A. nipalensis* was involved. The last six years' observations have revealed that *A. pomarina/clanga* are scarce at Eilat, and that *A. nipalensis* is by far the commonest migrating eagle in spring, constituting c. 98 per cent of the total eagle migration in 1976-80. In the following annual totals, which comprise Steppe or *Aquila* sp. (probably Steppe), we have discarded all eagle observations prior to 1974 because of the uncertainty of the species involved.

1974: 4,021 *Aquila* eagles counted between 26 February-14 April, 405 were identified as Steppe Eagles. The majority of eagles (69 per cent) passed between 28 February-3 March.

1975: 1,021 *Aquila* eagles counted between 31 March-6 April, 800 were identified as Steppe Eagles.

1976: 18,173 *Aquila* eagles counted between 9 February-6 May, 11,685 (64 per cent) were identified as Steppe Eagles. The majority (63 per cent) passed in the last week of February and the first week of March.

1977: 28,371 *Aquila* eagles counted between 20 February-17 May, 19,288 were identified as Steppe Eagles (Figure 13). Peak days of eagles were 4,242 on 21 February and 3,378 on 25 February.

1978: 3,541 *Aquila* eagles counted between 7-13 March, 3,107 were identified as Steppe Eagles.

1979: 26,062 *Aquila* eagles counted between 12 February-30 March, 12,635 were identified as Steppe Eagles. The majority passed in the last week of February-first week of March. Peak days were 5,147 on 25 February, 2,824 on 3 March and 4,615 on 4 March.

1980: 14,615 *Aquila* eagles were counted between 25 February-19 April, 8,048 were identified as Steppe Eagles. The majority passed in the last week of February-first week of March. Peak days of eagles were 3,804 on 28 February, 1,728 on 29 February and 1,488 on 4 March.

The large number of unidentified *Aquila* eagles were almost exclusively made up of Steppe Eagles. They were observed mainly on days of heavy Steppe Eagle migration, but were too distant for specific identification. (See Figure 13.)

In 1976, the *Aquila* eagle migration was followed from its start on 10 February with large and regular migration commencing on 19-20 February. In 1977, the eagle migration apparently was at its peak on the first day of observation (20 February).

According to Safriel (1968), the *Aquila* eagle migration starts in the last week of January, with regular passage from the first week of February and peak passage in the latter half of March. According to our observations, the Steppe Eagle occurs from mid-February (sometimes earlier?) and is seen late into April. Very few eagles are seen in May. The vast majority pass through before mid-March (Figure 13). In 1977, age identification was attempted and 56 per cent of the Steppe Eagles were classified into three groups: birds in juvenile, immature and adult plumage (Figures 14 and 15).

Birds with almost or completely unmarked white greater primary and secondary coverts on the underwing, forming an unbroken wide wing-bar, were classified as juvenile birds. Birds with this wing-bar more or less broken up by dark patches, or apparently without the wing-bar, but with underwing- and tail-coverts still pale, were classified as immature birds. All dark brown birds without wing-bars (at best, some narrow white edging to some greater coverts, visible at close range only), and darkish underwing and tail-coverts, were classified as adult birds. Although a sharp definition into these groups is far from always possible, we consider the vast majority of Steppe Eagles were correctly classified. (See photographs, centre of book.)

In 1977, adult birds totalled *c.* 60 per cent of the passage and 98 per cent of these passed before 17 March, the vast majority in the last ten days of February. Immature birds totalled *c.* 23 per cent of the passage and 76 per cent of these passed before 17 March. Juvenile birds totalled *c.* 17 per cent and 76 per cent of these passed *after* 17 March, the majority in late March-early April. Moreover, as can be deduced from *Figures 14 and 15*, immatures outnumbered both adults and juveniles in the period 7-16 March, when the migration of adults was at its end, and that of juveniles just starting. In 1979-80, the distribution of adults, immatures and juveniles much resembled the pattern from 1977, the adults peaking in last week of February and first week of March.

The African winter quarters of the Steppe Eagle is outlined as Northeast Africa by Vaurie (1965) who says that it winters occasionally south to Kenya. However, at least the juvenile Steppe Eagle winters commonly in Kenya (Brown 1970; various observers). Brooke *et al.* (1972) show that juveniles are not rare in Rhodesia, and juveniles and immatures winter farther south than adults which apparently do not reach Rhodesia (a photograph of a skin in the paper by Brooke *et al.*, however, shows a bird in adult plumage). Most adult birds winter much further north in Africa. The fact that adult Steppe Eagles perform mass-migrations at Eilat very early in the spring, while immatures and especially juveniles have a more prolonged migration period a little later, supports the information given by Brooke *et al.* The majority of adult Steppe Eagles, occurring in late February and early March at Eilat, are unlikely to be wintering much south of the Equator. The very large numbers of eagles reported from Eritrea in November (Smith & Popov 1953; Smith 1957 & 1960), and the statement by Moreau (1972), that the Steppe Eagle has been reported as wintering all across the Sudan between 13° and 19°N, suggest, that many adult Steppe Eagles passing early at Eilat, come from north east Africa (In the British Museum at Tring there are at least seven adult *A.nipalensis (rapax) orientalis*, collected in Sudan).

The main distribution of the Steppe Eagle in European Russia stretches from the steppes north of the Caucasus to south east Woronezh, while it has decreased markedly in the steppes of Ukraine (Glutz *et al.* 1971). It is not rare in Transvolga and northern Kazakstan but more rare further east (Dementiev *et al.* 1951). It seems probable that many of the eagles occurring at Eilat, are on their way to the steppes north and north east of the Caucasus.

Considering the low mortality rate among the large eagles, it is surprising that juvenile birds account for no more of the total migration, than they do. We can suggest no explanation. Perhaps some summer in Africa. Perhaps younger Steppe Eagles pass more widely over Sinai.

In February and early March the migration of eagles is most conspicuous along the northernmost part of the coastal mountains of Sinai, where the stream of birds are heading north-north-east towards Eilat town. At the head of the Gulf of Aqaba the eagles turn north east and often east-north-east and it appears they head in a more easterly direction than most other species. Simultaneous observations at Eilat and Coral Island have revealed that eagles following the coast at the latter locality are sometimes missed at Eilat. They have probably crossed the gulf towards Jordan a little south of Eilat. This is supported by the fact that distant eagle migration over the Jordanese mountains has been observed through a telescope from the North Beach. These birds have probably crossed the gulf further south. Similarly, large numbers of Steppe Eagles have been observed actually crossing the gulf at or near Coral Island, heading north east or east-north-east towards Jordan or even Saudi Arabia. However, strong migration is evident at Eilat during most afternoons and the sea-crossing in the warmer part of the day, with diminishing numbers at Eilat at the same time, is not reflected in *Figure 16*. In the latter half of March and first half of April, the eagles tend to fly higher and to be less coast-bound. The eagle passage is frequently absent in the early afternoon at Eilat but it often reappears again in late afternoon. The absence of eagles in the early afternoon is probably a result of either a sea-crossing south of Eilat, or the flight-height, or both.

Aquila pomarina

Lesser Spotted Eagle

1974: 23 between 29 March-11 April.

1976: 9 between 31 March-6 May.

1977: 65 between 21 March-22 April.

1979: 217 between 26-29 March, of which 211 passed on the 26 March.

1980: 18 between 2 March-5 April, with most birds in late March-early April.

The eagle migration at Eilat has been ascribed to *A. pomarina/clanga* by Safriel (1968) but this has proved to be wrong. The Lesser Spotted Eagle should now be classified as a scarce but annual spring migrant, occurring in irregular numbers between early March to early May, with most birds in late March-early April. This species amounts to no more than 0.5-1 per cent of the total eagle passage at Eilat. Nevertheless its migration period at this southern latitude is probably well reflected by its occurrence at Eilat. The vast majority of Lesser Spotted Eagles migrate west of Eilat in the spring (see north west Negev and the Dead Sea), and it occurs most frequently at Eilat during periods of prevailing westerly winds, as was the case in 1979.

Aquila clanga

Spotted Eagle

1974: 1 on 1 April.

1976: 2 on 5 April, and 1 on 7 April.

1977: 8 between 21 February-12 May.

1979: 1 on 17 March.

1980: 1 on 6 March and 1 on 5 April.

At Eilat, as in several other Near Eastern localities, this species has proved to be a rather scarce migrant. Though undoubtedly overlooked, it must be classified as rare, occurring during the whole spring but with most records in April.

According to Vaurie (1965), the Spotted Eagle is partly migratory without a definite wintering area. In the western part of its range it winters mainly from south east Europe, through Turkey, the Iranian region, Iraq, the Arabian Peninsula, Egypt, south to Eritrea. Thus, the winter range is not unlike that of the Imperial Eagle. Considering its northerly winter quarters (most birds wintering north of the Eilat latitude), larger concentrations are unlikely to occur at Eilat.

Most Spotted Eagles, seen close enough for age-identification, have been young birds.

Aquila heliaca

Imperial Eagle

1974: 4 juveniles between 1-10 April.

1975: 20 juveniles between 31 March-5 April.

1976: 22 (10 adults), 1 immature and 11 juveniles) between 15 February-5 April.

1977: 95 (36 adults, 14 immatures and 45 juveniles) between 20 February-10 April (*Figure 17*).

1978: 8 (2 adults, 2 immatures and 4 juveniles) between 7-13 March.

1979: 58 (19 adults, 7 immatures, 20 juveniles and 12 unaged) between 19 February-28 March.

1980: 66 (25 adults, 12 immatures and 29 juveniles) between 28 February-13 April.

This species was not mentioned by Safriel (1968). We found it to be a regular spring migrant in rather small numbers, compared with the Steppe Eagle, occurring from mid-February (perhaps earlier) to mid-April. Adult birds pass from the start of the migration to mid-March; in 1977 mainly in late February; they have not been observed after 22 March. Juveniles pass mainly in the latter half of March and first week of April. In 1977, the immature birds (in pied transitional plumage) occurred mainly in the period 7-16 March when they outnumbered both adults and juveniles (*Figure 17*). In 1979-80 the age distribution of adults, immatures and juveniles resembled that found in 1977.

Juvenile birds were in yellow-brown, dark-streaked plumage, immatures were in strongly mottled and pied plumage, when yellowish crown-hind-neck, bi-coloured tail and dark body and wing-coverts start to occur. Adult birds were almost blackish-brown with whitish-yellow crown-hind-neck and bi-coloured tail. The demarcation between immature and subsequent plumages can sometimes be difficult to determine in the field.

The Imperial Eagle is undoubtedly somewhat overlooked among the many migrating Steppe Eagles (particularly immatures), but the observations indicate that the Imperial Eagle forms no more than 0.5-1 per cent of the total eagle migration.

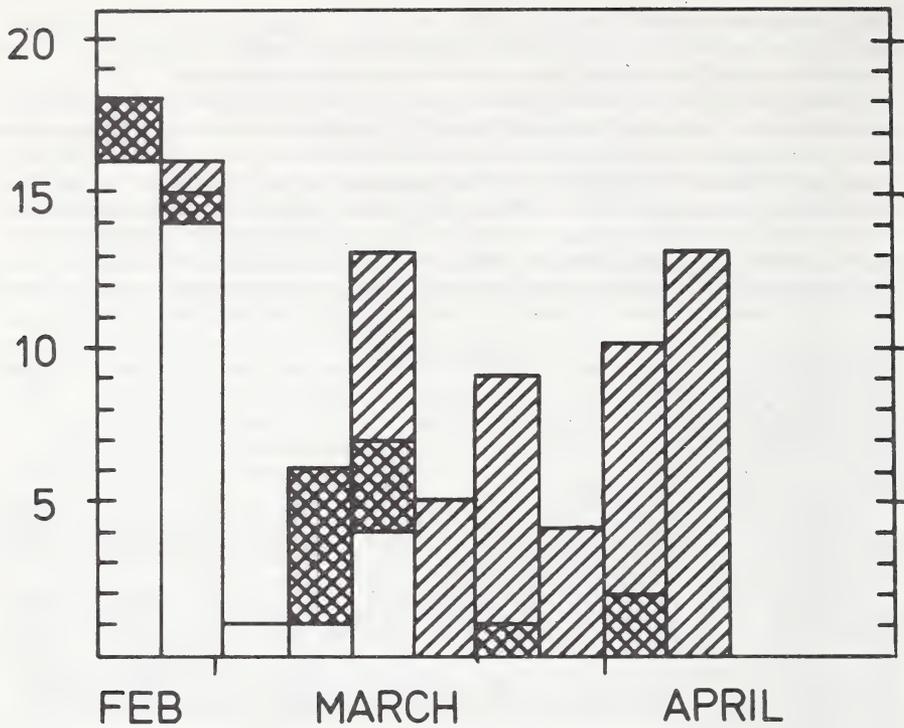


Figure 17. Imperial Eagle—*Aquila heliaca*, spring 1977. In five day periods.
 Unhatched=adult, cross-hatched=immature, hatched=juvenile.

Like the Steppe Eagle, it appears that adults winter further north than younger birds, judging by their early occurrence at Eilat. According to Vaurie (1965), the nominate race is migratory, wintering in the western Palearctic region from Russian Turkestan, Transcaspia, Iraq, Egypt, Northern Sudan and the Red Sea coast to Eritrea. It winters regularly also in the Levant (P. Schlütter *in litt.*; own observations) and on the Arabian Peninsula (judging from photographs from Oman). Thus, it winters somewhat further north than the Steppe Eagle. In U.S.S.R., only the northerly populations are migratory and winter from Transcaucasia and Turkestan (Dementiev *et al.* 1951). In the light of this, larger concentrations of Imperial Eagle are not likely to occur at Eilat or elsewhere at this southern latitude. The ratio of migrating Imperial to Steppe Eagle found at Eilat, probably represents the norm so far south.

In central and southeast Europe the adult Imperial Eagle is partly resident if winters are not too severe (Glutz *et al.* 1971), supported by its rarity at the Bosphorus in the autumn (Porter & Willis 1968) (observations at the Bosphorus have not been extended beyond 8 November after which adult birds could easily occur). The presence of many adults at Eilat, and the larger numbers passing in the spring suggest that some of the eagles encountered come from an area where the winter is more severe and adults more migratory than in southeast Europe.

Although adult birds form a conspicuous part of the migration of this species, they were less numerous than juveniles in 1976-1980, contrary to the situation with the Steppe Eagle. Many adult Imperial Eagles must winter north of Eilat.

Some Imperial Eagles are encountered in the migrating flocks of Steppe Eagles, others migrate alone, and the general pattern of migration does not seem to differ from that of the Steppe Eagle.

Aquila chrysaetos **Golden Eagle**
1973: One immature flew N.E. on 1 April.

Hieraaetus pennatus **Booted Eagle**
1969: 21 between 25 March-29 April.
1970: 65 between 24 March-19 May.
1974: 55 between 26 March-19 April.
1975: 24 between 31 March-7 April.
1976: 100 between 7 March-6 May.
1977: 175 between 10 March-16 May (*Figure 18*)
1978: 1 on 9 March.
1979: 12 between 15 March-30 March.
1980: 27 between 16 March-19 April.

This was classified as a rather scarce spring migrant by Safriel (1968) occurring in small numbers February-May. According to our observations it is a regular spring migrant in rather small numbers, from early March to at least mid-May. It was regular in the latter half of March and throughout April with most birds passing in the first three weeks of April (*Figure 18*).

The ratio of light to dark phase was studied in 1976-1977. In 1976, both phases were reported equally common (50:50) but in 1977, the light phase amounted to 63 per cent of the passage of this species (111:64) (*Figure 18*). This somewhat irregular ratio cannot be properly explained. The dark phase is undoubtedly overlooked among the many Black Kites, and it is possible to distinguish the light phase from other similar sized raptors at a greater distance than the dark phase.

Booted Eagles are usually seen singly or very few together. They sometimes migrate in flocks of Steppe Buzzards and especially Black Kites, following the north east course of those species.

Hieraaetus fasciatus **Bonelli's Eagle**
1977: 1 immature on 16 March.
1979: 1 juvenile on 21 February, 1 juvenile on 24 and 26 March.
1980: 1 adult on 4 March.

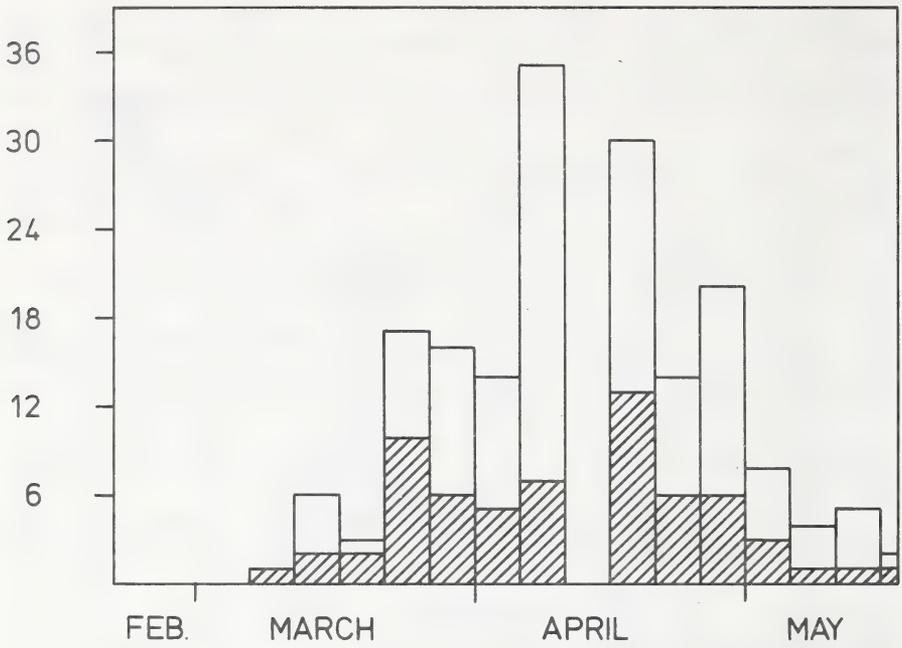


Figure 18. Booted Eagle—*Hieraetus pennatus*, spring 1977. In five day periods.
Hatched=dark phase, unhatched=light phase.

*Pandion haliaetus***Osprey**

- 1970: 4 between 29 March-3 May.
 1971: 3 between 4-14 April.
 1973: 6 between 30 March-1 April.
 1974: 4 between 1-21 April.
 1975: 2 between 1-5 April.
 1976: 15 between 6 March-5 April.
 1977: 122 between 20 February-10 May.
 1979: 9 between 22 February-30 March.
 1980: 16 between 6 March-19 April.

Not mentioned by Safriel (1968). Prior to 1977 it was thought to be regular but scarce. In 1977 when good coverage was achieved it occurred from late February to mid-May, mainly in the first half of April, all records being of birds migrating singly.

*Falco naumanni***Lesser Kestrel**

- 1969: 6 between 13 March-5 April.
 1970: 86 between 25 March-16 April, mainly 8-14 April.
 1973: 3 on 31 March.
 1976: 20 between 13 March-20 April, mainly late March-early April.
 1977: 27 between 12 March-2 May, mainly late March-early April.
 1979: 7 between 25 February-29 March.
 1980: 12 between 10 March-22 April.

Mentioned as occurring from the last week of April by Safriel (1968). We found it to be a fairly common migrant, occurring from late February to early May, mainly in late March and the first half of April. Large flocks have not been recorded at Eilat, the highest number being of 20 in mid-April 1970.

*Falco tinnunculus***Kestrel**

- 1969: 8 between 6 March-3 April.
 1970: 26 between 23 March-31 May.
 1971: 11 between 4-14 April.
 1974: 1 on 5 March and 1 on 20 March.
 1976: 25 between 19 February-20 April.
 1977: 11 between 24 February-24 March.
 1979: 36 between 19-29 March.
 1980: 10 between 4 March-19 April.

According to Safriel (1968) occurring in moderate numbers in March-April. We found it to be a regular spring migrant from mid-February to mid-April, mainly in March.

*F. naumanni/tinnunculus***Unidentified kestrels**

- 1976: 57 birds. 1977: 37 birds. 1979: 6 birds.

*Falco vespertinus***Red-footed Falcon**

- 1977: 1 on 21 April and 3 on 24 April. Mentioned by Safriel (1968) as occurring from 4th week of May.

*Falco subbuteo***Hobby**

- 1969: 3 between 15 March-13 April.
 1970: 9 between 23 March-31 May, max. of 7 between 28-31 May.
 1971: 1 on 9 April.
 1976: 5 between 30 March-20 April.
 1977: 6 between 9 April-12 May.
 1979: 1 on 29 March.

According to Safriel (1968) this is a scarce migrant in late May-early June. We found it occurred from late March to late May and doubtless it would have been recorded in June if our observations had continued.

Falco eleonora **Eleonora's Falcon**

1977: 6 between 20 April-11 May (5 in May).

Not mentioned by Safriel (1968). Though only recorded in 1977, this species could be expected to be a regular but scarce migrant in the first half of May if better coverage had been achieved in that month.

Falco biarmicus **Lanner**

1977: 1 on 1, 2 and 16 March, all looked as if on migration.

1979: 1 immature on 3 March.

1980: 1 immature on 29 February and 1 on 25 March.

It was not possible to assign these birds to a race.

Falco cherrug **Saker**

1980: 1 immature on 5 March.

Falco peregrinus **Peregrine**

1979: 1 adult on 22 February.

Falco pelegrinoides **Barbary Falcon**

1977: 1 on 12 May looked as if on migration.

THE SOUTHERNMOST SINAI-RAS MUHAMMAD

In co-relation to the raptor migration at Eilat it is worth mentioning some observations of raptors coming across the Gulf of Suez at Ras Muhammad.

To the north of Ras Muhammad the towering mountains of southern Sinai are clearly visible, with the highest peak of 2,642 metres about 100 km. away. To the west and south-west lies the Gulf of Suez with Shadwan Island, some 30 km. south west of Ras Muhammad. In clear weather the African mainland is visible about 70 km. to the west. The southern part of the Gulf of Suez is c. 25-30 km. wide (from El Tor to Africa). The mouth of the gulf is named the Strait of Jubal.

At Ras Muhammad the observation days were as follows:—

1971: 9 April.

1972: 31 March-1 April.

1974: 4-5 April.

1975: 30 March.

1976: 7 February, 27-28 March.

1977: 12 April.

1978: 23 March.

The commonest raptors observed here were Black Kites and Steppe Buzzards while other species have been encountered largely singly or few together only, thus Egyptian Vulture one, Marsh Harrier three, Pallid Harrier one, *Circus* sp. one, Sparrowhawk one, *Accipiter* sp. one, Kestrel one.

The observations of Black Kites are as follows:—

1971: 18 on 19 April.

1972: 135 on 31 March and 95 on 1 April.

1974: 119 on 4 April and 135 on 5 April.

1976: Five on 27 March.

1978: 25 on 23 March (two or three) with yellow bills!).

Buteo/Milvus: 1974: 178 on 4 April and 176 on 5 April.

The observations of Steppe Buzzards are as follows:—

1974: 230 on 4 April and 756 on 5 April.

1976: Four on 27 March.

1978: 227 on 23 March.

From Hurghada on the African Red Sea coast, c. 75 km. S.W. of Ras Muhammad, Marchant (1941) noted, that especially kites were common. Egyptian Vultures, harriers, *Buteo* spp. and Black Kites were observed to cross the Gulf of Suez between Hurghada and Ras Gamsa (See *Figure 1*) towards Sinai. At Ras Muhammad the same species have been observed coming in from the southwest, apparently via Shadwan Island. Our observations correspond very well with Marchant's. Many of these raptors probably appear later at Eilat.

The largest migration observed at Ras Muhammad took place on 4-5 April 1974 on days with strong north westerly winds blowing down the Gulf of Suez. The weather was otherwise fine, cloudless and with good visibility. Thus, Shadwan Island was clearly visible and the African mainland just darkened the horizon to the west. All buzzards and kites flew less than 50 metres above sea level, many birds so low that they almost touched the sea with their wing-tips. The strong wind obviously drifted the birds eastwards and some may well have reached Tiran Island or even Saudi Arabia. Some very distant birds flying well to the east of Ras Muhammad were heading N.W. towards Sinai, facing the wind. Some kites were very exhausted and landed on the first cliffs they reached. When we left in the afternoon on 5 April, several Steppe Buzzards came in from the south west between the southernmost point and some 15 km. up the west coast of Sinai. There is little doubt that many birds crossed the Strait of Jubal further north.

On 8 April 1977, the following raptors were observed from the road between Ras Muhammad and El Tor (c. 90 km. to the north west): Steppe Eagle 10, Steppe Buzzard 402, Black Kite 19, Levant Sparrowhawk one, Kestrel one. The birds passed over a broad front, coming from the direction of Africa and heading N.E.

Migrating raptors have also been observed in the coastal mountains between Nuweiba and Dahab on the east coast of Sinai, 75 and 127 km. respectively south west of Eilat. The observations are as follows:—

Black Kite:

1974: 174 on 3 April.

1975: 314 on 29 March and 20 on 30 March.

Steppe Buzzard:

1974: 38 on 3 April.

1975: 119 on 29 March and 560 on 30 March.

Also two Egyptian Vultures and one Montagu's Harrier were recorded on migration in the area.

THE NORTHWESTERN NEGEV

Published information on spring migration of raptors in the Negev is lacking. We have some observations from northwestern Negev, notably from Nizzana (A), Shivta (B), Yeroham (C) and Ein Avdat (D) (See *Figure 1*). Shivta, and especially Nizanna, are almost completely flat, dry and sandy semi-desert, covered with scattered small bushes. Yeroham and Ein Avdat are low, hilly and grass-covered stony country.

Despite the very poor coverage, the areas having been visited on only a few days each spring since 1971, it appears that considerable numbers of raptors migrate over the area. The migration stream usually originates from the south west and heads towards the north east, sometimes even east. The observations are interesting for the fact that the same birds could not possibly occur at Eilat. The species composition and their relative abundance differs from that occurring at Eilat. As the birds come mainly from the south west they most probably will have passed over Suez and/or the northernmost part of the Gulf of Suez, thus missing Eilat entirely.

The days of observation in the Negev were as follows:—

1971: 10-11 April.

1972: 3-4 April.

1973: 2-3 April.

1974: 6-8 and 16 April.

1975: 27-29 March and 5-6 April.

1976: 20-21 March and 8-9 April.

1977: 2 April.

1978: 20-21 March.

The raptors observed were as follows:—

Black Kite: **1973:** 25 on 2 April (C), eight on 3 April (A); **1974:** four on 7 April (B); **1975:** two on 27 March (D), 29 on 28 March (B), five on 29 March (B), one on 30 March (D), seven on 5 April (D), 81 on 6 April (A); **1976:** one on 8 April (A) and one the same day (D).

Egyptian Vulture: **1971:** Three on 10-11 April (B); **1973:** seven on 2 April (C), five on 3 April (A); **1974:** two on 6 April (D), 13 on 7 April (A) and 15 the same day (C), two on 8 April (B); **1975:** 17 on 27 March (D), three on 29 March (B), two on 5 April (D), 11 on 6 April (A); **1976:** one on 21 March (B), eight on 8 April (D); **1977:** seven on 2 April (D).

Griffon Vulture: **1977:** 10 on 2 April (D).

Short-toed Eagle: 72 on 15 days, 20 March-10 April.

Marsh Harrier: four on 4 days, 6-10 April.

Pallid Harrier: two on 2 days, 5-6 April.

Montagu's Harrier: seven on 3 days, 21 March-6 April.

Pallid/Montagu's Harrier: 11 on 5 days, 21 March-7 April.

Sparrowhawk: three on 3 days in early April.

Steppe Buzzard: **1973:** 165 on 2 April (C), 207 on 3 April (A); **1974:** 16 on 6 April (D), 16 on 7 April (B), two on same day (C), 15 on 8 April (B); **1975:** 13 on 27 March (D), three on 29 March (A), four on 30 March (D), 1,665 on 5 April (D), 1,797 on 6 April (A); **1976:** 10 on 8 April (D), two on 9 April (D); **1977:** 10 on 2 April (D); **1978:** six on 20 March (A).

Long-legged Buzzard: three on 3 days late March-early April.

Lesser Spotted Eagle: **1973:** seven on 2 April (C), 107 on 3 April (A); **1974:** 13 on 6 April (D), 33 on 7 April (A), two the same day (C); **1975:** one on 29 March (A), one on 30 March (D), 40 on 5 April (D), 197 on 6 April (A); **1976:** two on 9 April (D); **1977:** one on 2 April (D), two on 20 March (A).

Spotted Eagle: **1974:** two on 7 April (C).

Steppe Eagle: **1973:** 12 on 2 April (C), six on 3 April (A); **1974:** four on 6 April (D), six on 7 April (B) and 60 the same day (C), three on 8 April (B); **1975:** one on 29 March (A), 20 on 5 April (D), 44 on 6 April (A); **1976:** 38 on 8 April (D); **1977:** two on 2 April (D); **1978:** one on 20 March (A).

Imperial Eagle: **1974:** one on 6 April (D), three on 7 April (C).

Aquila sp. **1977:** 67 on 4 days between 2-7 April.

Booted Eagle: 32 on 11 days between 29 March-16 April.

Osprey: two on 2 days in early April.

Lesser Kestrel: 12 on 2 days in early April.

Kestrel: one on 20 March 1978.

As can be seen the observations are few and scattered from the Negev. A brief comparison is possible with the raptor migration at Eilat in late March-early April, the period when most observations were made in Negev. The most notable difference from Eilat is the presence of the Lesser Spotted Eagle in northwestern Negev, where it is a regular and common spring migrant, seen much more frequently and normally in larger numbers than at Eilat. Steppe Eagles and Steppe Buzzards are commonly seen on migration in this part of Negev. Considering the lack of coastlines or mountains, to concentrate the birds as occur at Eilat, and the fortuitousness of our observations in the Negev, it seems reasonable to suppose that fair numbers of these two species pass over the interior of Sinai, not being observed at Eilat. The same applies to the Egyptian Vulture, and the Booted and Short-toed Eagles, which, in late March-early April,

are no less common in northwestern Negev than at Eilat. Perhaps, the Black Kite forms a comparatively smaller percentage of the raptor migration in Negev than at Eilat. We believe that the species composition at Suez in the spring, which is poorly known, is reflected in the raptor migration in northwestern Negev.

The majority of raptors in Negev have been observed in the morning between 08.00 (sometimes earlier) and 10.30 hrs., but very few thereafter. Eagles and buzzards have been observed to take off from the desert near Nizanna at 07.30 hrs. and fly actively just above the ground until they found a thermal, then ascending in soaring flight and disappearing in gliding flight towards the north east. (In the deserts east of Baghdad, Marchant (1963) noted, that eagles roosting on the ground at 07.00 hrs. had disappeared two hours later. This is well in accordance with our own observations.) From 11.00-14.00/15.00 hrs. very few raptors have been observed, less than 5 per cent of the numbers seen in the morning. Typically, the numbers increase in the late afternoon, usually of eagles and buzzards coming from the south west in slow gliding flight, obviously losing height, descending to the ground. It appears that strong thermal upcurrents must develop even over essentially flat desert, and the raptors probably fly so high during the hottest time of the day, that they are invisible from the ground. The light conditions are very sharp in these regions, and if a bird flies *c.* 1,500-2,000 metres above sea level it is invisible in a deep blue sky.

In the morning of 7 April 1974, we observed several raptors on migration near Nizanna (A). In the early afternoon the same day there was no visible migration over the hills north west of Yeroham (C). Approaching thunderclouds from west at 15.45 hrs. suddenly brought several raptors on the sky above us. They appeared within such a short period, that the only apparent explanation was, that the birds descended suddenly from a great height. At 16.00 hrs. the following raptors were soaring some 50-100 metres above us (some of them almost descending to the ground): Imperial Eagle one; Steppe Eagle 45; Spotted Eagle two; Short-toed Eagle two. The following raptors were still heading north east at a low altitude: Egyptian Vulture 15; Imperial Eagle two; Short-toed Eagle three. At a high altitude, the following birds were also heading north east: Steppe Eagle 15; Lesser Spotted Eagle two; *Aquila* spp. nine; Steppe Buzzard two. These raptors were observed within half an hour, an indication of what was taking place within a small area of the Negev.

THE DEAD SEA

Published information on raptor migration from the Dead Sea is very scanty; the only reference we have been able to trace so far is that of Hollom (1959). Since 1972, the Dead Sea has been visited on few days every spring, mainly in late March-early April. It appears that the western edge of the Dead Sea depression is used by a number of raptors on spring migration, the birds taking advantage of the superb thermal upcurrents and soaring conditions available.

The Dead Sea (see *Figure 1*) lies 398 metres below sea level. To the west, the Judean Desert falls abruptly *c.* 4-600 metres to the Dead Sea, forming a cliff which runs N.N.E. along its edge along the lake side. Our observations were made from different sites on this western edge, mainly at Ein Gedi (A) but also from Ein Ze'elim (B), Mitspe Shalem, Qumran, Arad, Masada and the nearest part of the Judean Desert.

The observation periods were as follows:—

1972: 24 March and 5 April.

1973: 29 March and 10-11 April.

1974: 27 March.

1975: 26-28 March and 4 April.

1976: 31 January-1 February, 10 March, 24 March and 10-11 April.

1977: 8, 9 and 12 April.

1978: 11-14 March, 27 March.

1980: 24-27 March and 7 April.

The species observed were:—

Honey Buzzard: 1977: 34 on 20 May (A), five the same day (B), 91 on 21 May (A+B).

Black Kite: 252 on 18 days, mid-March/mid-April; **1980:** 982 on 24-27 March (A), 520 on 7 April at Arad.

Egyptian Vulture: **1972:** 97 on 24 March (A), 21 on 5 April (A); **1973:** 27 on 29 March (A) and six the same day at Arad, six on 10 April (A), one on 11 April in Judean Desert; **1974:** seven on 27 March (A); **1975:** three on 26 March (A), 25 the same day at Mitspe Shalem, 49 on 27 March (A), two on 28 March (B), 15 on 4 April (A); **1976:** four on 10 March (A), 30 on 24 March (A), two on 11 April at Masada, four on 12 April (A); **1977:** seven on 8 April (A) and 10 the same day at Qumran, five on 9 April at Qumran; **1978:** 29 on 12 March, two on 14 March (A); **1980:** eight on 24 March (B), 352 on 25, two on 26 and 18 on 27 March (A), four on 7 April at Arad.

Griffon Vulture: 23 on 5 days, late March-early April.

Marsh Harrier: 10 on 6 days, late March-early April.

Pallid Harrier: seven on 2 days, late March-early April.

Montagu's Harrier: one on 5 April 1972.

Pallid/Montagu's Harrier: six on 5 days, mid-March/early April.

Sparrowhawk: 11 on 6 days, mid-March/mid-April.

Levant Sparrowhawk: **1976:** 150 on 12 April (B); **1980:** three on 25-27 March (A).

Steppe Buzzard: **1972:** 1,140 on 24 March and 199 on 5 April (A); **1973:** 737 on 29 March (A), 45 the same day at Arad, 63 on 10 April (B) and eight the same day in Judean Desert; **1974:** 46 on 27 March (A); **1975:** 26 on 26 March (A), 58 the same day at Mitspe Shalem, 42 on 27 March (A), 61 on 28 March (B), 870 on 4 April (B) and 35 the same day at "the Dead Sea"; **1976:** one on 10 March (A), five the same day (B), 1,000 on 24 March (A), 29 on 11 April at Masada, 17 on 12 April (B) and 120 the same day (A); **1977:** 200 on 8 April (B), 1,545 the same day (A), 47 the same day at Qumran, 431 on 9 April at Qumran, 27 on 12 April (A) and 29 the same day at Masada; **1978:** 14 on 11, 66 on 12, 171 on 13 and 1,378 on 14 March (A), 280 on 27 March (B); **1980:** 145 on 24 March (B), 2,100 on 25, 100 on 26 and 1,100 on 27 March (A), 600 on 7 April at Arad.

Long-legged Buzzard: 57 on 9 days, late March-early April; includes one dark phase on 9 April at Qumran (also includes 41 on 25 March 1980 (A)).

Lesser Spotted Eagle: **1972:** 14 on 24 March and 17 on 5 April (A); **1973:** 33 on 29 March (A) and two the same day at Arad, five on 11 April (B) and three the same day (A); **1974:** 15 on 27 March (A); **1975:** four on 26 March (A) and 19 the same day at Mitspe Shalem, 21 on 27 March (A), four on 28 March (B), 31 on 4 April (B) and 19 the same day (A); **1976:** 306 on 24 March (A), one on 11 April at Masada, one on 12 April (B) and two the same day (A); **1977:** seven on 8 April (B) and 25 the same day (A), six on 9 April at Qumran; **1978:** 11 on 13 March (A), 130 on 27 March (B); **1980:** three on 24 March (B), 375 on 25, two on 26 and 85 on 27 March (A), six on 7 April at Arad.

Spotted Eagle: two on 2 days in late March; **1978:** one on 11, one on 12, two on 13 and three on 14 March (A); **1980:** one on 25 March (A).

Steppe Eagle: **1972:** two on 24 March and five on 5 April (A); **1973:** six on 29 March (A), one on 10 April (A), one on 11 April (B), two on same day (A) and one the same day in Judean Desert; **1975:** one on 27 March (A); **1976:** 12 on 24 March (A), one on 12 April (B); **1977:** three on 8 April (B) and 11 the same day (A), seven on 9 April at Qumran; **1978:** two on 11, three on 12, nine on 13 and six on 14 March (A), 29 on 27 March (B); **1980:** 12 on 24 March (B), 41 on 25 and 13 on 27 March (A), 55 on 7 April at Arad.

Imperial Eagle: four on 4 days, late March-early April.

Booted Eagle: 53 on 15 days, mid-March/mid-April.

Osprey: 14 on 8 days, late March-early April.

Lesser Kestrel: six on 4 days, mid-March/early April.

Kestrel: seven on 6 days, mid-/late March.

Since thorough and extensive observations, covering the whole spring, are lacking, it is difficult to interpret the observations. Nevertheless, the following raptors are obviously more common at the Dead Sea than at Eilat: Egyptian Vulture, Short-toed Eagle, Long-legged Buzzard

and Lesser Spotted Eagle, (perhaps also the Spotted Eagle). The largest daily totals of these four species are considerably higher than those from Eilat since 1969, despite the fact that the latter has received a far greater coverage than the Dead Sea. The Steppe Eagle is regular in small numbers, but the largest totals in late March-early April are smaller than those of Lesser Spotted Eagle in the same period. The Lesser Spotted Eagle is the commonest eagle at the Dead Sea in the middle of the spring whilst the Steppe Buzzard and Black Kite are the commonest raptors there in mid-March/early April, but numbers are much smaller than at Eilat in the same period. There is some agreement between the Dead Sea and northwestern Negev. The relative abundance and species composition at the two places resemble each other, both differing slightly from Eilat.

The raptor migration at the Dead Sea, notably at Ein Gedi where most observations have been made, follows the western edge of the Dead Sea depression in its north-north-easterly direction. Some raptors arrive at the depression from S.W. and continue N.N.E. but the vast majority observed at Ein Gedi fly S.S.W.-N.N.E., following the very edge of the depression. These birds have probably arrived in the valley further south. Considering the flight direction at Eilat and the species composition at both place, it is, however, not likely that the birds have followed Wadi Araba from Eilat to the Dead Sea.

DISCUSSION AND CONCLUSIONS

As shown, the species composition differs between Eilat and the north west Negev and especially between Eilat and the Dead Sea. At Eilat, the vast majority of migrating raptors are of the following species: Honey Buzzard, Black Kite, Steppe Buzzard and Steppe Eagle. The Levant Sparrowhawk is common and the Egyptian Vulture is regular in fair numbers while the Short-toed Eagle and Booted Eagle are scarce, relatively speaking. Compared with the Steppe Eagle, the Lesser Spotted Eagle is decidedly scarce, occurring at Eilat mainly during westerly winds. At the Dead Sea, four species are clearly commoner than at Eilat in late March-early April, namely Egyptian Vulture, Short-toed Eagle, Long-legged Buzzard and Lesser Spotted Eagle. In north west Negev, the Lesser Spotted Eagle is commoner than at Eilat, and the Egyptian Vulture and Short-toed Eagle are at least as common as at Eilat, probably even commoner.

The raptor migration stream at Eilat almost certainly must have crossed the southern half of the Gulf of Suez. It is most unlikely that it crosses the town of Suez or the northernmost part of the Gulf of Suez, since these lie on a more northerly latitude than Eilat. Consequently, the raptors migrating across the northern part of the gulf, or Suez itself, must pass west and north of Eilat. The main migration direction in north west Negev is S.W.-N.E. and the raptors recorded there would, in our opinion, have come from Suez and/or the northern part of the gulf, which is situated due S.W. of our observation area in the Negev. (See *Figure 19*.)

To us, it appears that the migration observed at the Dead Sea is not connected with that at Eilat, where the stream enters Jordan near the head of the Gulf of Aqaba, mainly in a north easterly direction. Furthermore, the species composition differs at the two places. In north west Negev the species composition is more in accordance with that at the Dead Sea, than with that at Eilat. In the Negev, the raptor migration is heading largely towards the Dead Sea depression (however, large numbers shift to a N.N.E. direction north of Negev, passing between the Dead Sea and the Mediterranean coast).

The occurrence of Lesser Spotted Eagles at Eilat (scarce, perhaps except during prevailing westerly winds), in north west Negev (fairly common) and at the Dead Sea (common) show that they almost certainly take a route crossing the northern part of the Gulf of Suez or via Suez town. If they crossed the southern part of the gulf in large numbers, they would be common at Eilat. At Suez, 1950, the spring migration of *Aquila* spp. commenced on 10 February but "it would seem that the densest movement took place in the second half of March and the first week of April" (see Simmons, 1951). Considering that the peak migration of Steppe Eagles at Eilat is in late February-early March and that the Lesser Spotted Eagle is common in late March-early April in north west Negev, at the Dead Sea and in north Israel (P. Schlüter *in litt*).

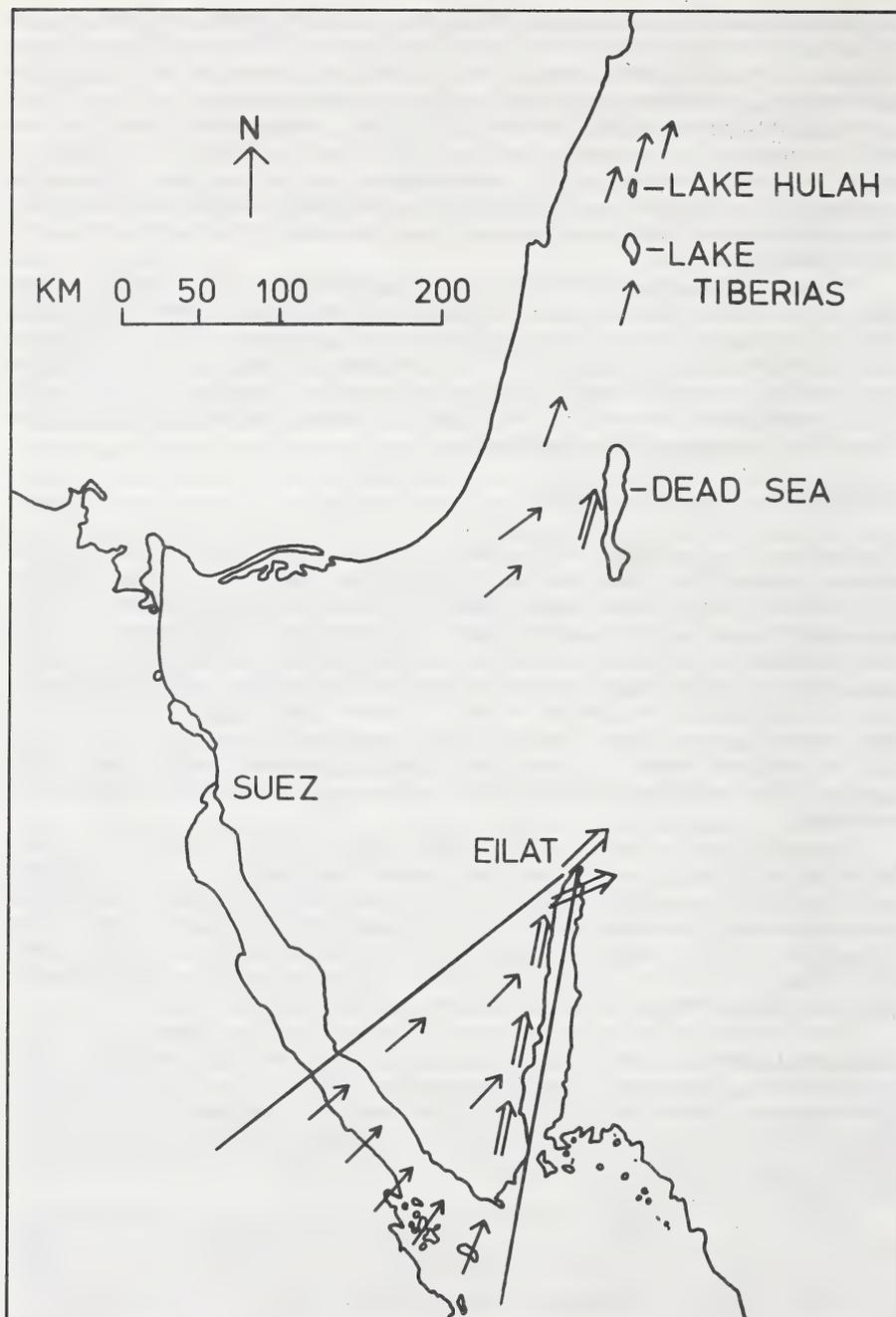


Figure 19. Shows flight-direction in south eastern Sinai and at Eilat. With a northeasterly migration-direction, most raptors crossing the southern part of the Gulf of Suez will occur at or near Eilat. The arrows in the Negev, at the Dead Sea and in North Israel show the migration direction of the raptors.

and own observations), a peak migration of eagles at Suez in late March-early April would almost certainly refer to Lesser Spotted Eagles. On the other hand, the Steppe Eagle must cross both the northern and the southern part of the Gulf of Suez. Those crossing in the south appear later at or near Eilat; those crossing in the north appear later in the Negev north west of Eilat. In consideration of the huge numbers of migrating Steppe Eagles at Eilat, the majority presumably leave Africa via the southern part of the Gulf of Suez.

The Short-toed Eagle is more common at the Dead Sea (and further west and north in Israel—various observers) than at Eilat. If the majority of this species passed Eilat, their numbers would be far greater than they are. Most must almost certainly take the northern route at or near Suez. Simmons (1951) gives the status of the Short-toed Eagle at Suez in spring 1950 as “not few in the second half of March” but mentions a record of 80 on 2 April. Such daily totals are not recorded at Eilat (but see the Dead Sea).

The Egyptian Vulture would appear to cross both the northern and southern part of the gulf. It is comparatively common at Eilat, but even larger numbers occur at the Dead Sea. Simmons gives its status at Suez as “occurring during the whole period” and mentions records of 30 on 2 April and one flock of 80 on 25 April. The largest daily total recorded at Eilat of this species was of 50 on 20 April. The majority probably take the northern route near Suez. According to Simmons, the Griffon Vulture occurred during the whole spring of 1950. He mentions a record of 50 on 2 April. Such numbers are not seen at Eilat and Griffons probably leave Africa mainly near Suez. The decrease of Griffons, and other species in the last 30 years, may, of course, also contribute to the explanation.

The Steppe Buzzard and Black Kite would appear to pass over both the northern and the southern part of the Gulf of Suez, though probably mainly across the south. Simmons mentioned two types of *Buteo* spp. “a grey-brown type recorded occasionally throughout the whole period and a distinctive and most contrasting type occurring not before the end of March when it was not uncommon”. The Black Kite occurred “with odd birds in the whole period”. At Suez, the eagle migration formed 50-60 per cent of the whole raptor migration in 1950. At Eilat, the eagle migration constitutes approximately 4-6 per cent of the whole raptor migration, the vast majority being Steppe Buzzards, Honey Buzzards and Black Kites. It would thus appear that buzzards and kites are much less numerous at Suez than at Eilat. The largest *Buteo* passage observed by Simmons, was of 230 on 2 April near the Great Bitter Lake! This was on the second day of continuous strong southerly wind which is unusual in the area. It suggests that ‘large’ *Buteo* passages normally take place further south. Simmons’ observations were in the peak migration period of Steppe Buzzards at Eilat, when many thousands pass each day. However, our observations from north west Negev indicate that fair numbers of Steppe Buzzards cross the northern part of the gulf. This is not indicated by Simmons’ (1951) and Tennent’s (1967) observations at Suez. Most Steppe Buzzards, taking a northerly route over the Gulf of Suez, probably cross the gulf south of Suez town. The scarcity of Black Kites at Suez is in striking contrast to its numbers at Eilat. It is not numerous in north west Negev but common at the Dead Sea. The Black Kite probably takes the southern route to an even greater extent than the Steppe Buzzard.

The lack of thorough observations in May at Suez, in Negev and at the Dead Sea, make it impossible to examine the routes of the Honey Buzzards. Evidently, very large numbers cross the southern part of the Gulf of Suez, which probably constitutes the main route of the species in the area.

The majority of Steppe Eagles, Steppe Buzzards, Black Kites and probably Honey Buzzards appear to prefer to cross the southern part of the Gulf of Suez, while the majority of Lesser Spotted Eagles, Short-toed Eagles and probably Egyptian Vultures (and other species?) appear to prefer to cross the gulf in the north, at or near Suez. The most obvious reason for this division is the difference in wind-loading among the different species. Thermal upcurrents are said to be slight or absent over the sea which means that the raptors must cross the gulf in more or less active flight. Those species with low wing-loading are able to cross the gulf without too much effort and they will probably not hesitate to cross it in the south. This holds true for the Black Kite, Honey Buzzard and, despite their slightly higher wing-loading,

apparently also for most Steppe Buzzards. Those species with a high wing-loading would possibly attempt to avoid crossing the gulf, except at its northernmost, narrowest part. This holds true for Lesser Spotted Eagle, Short-toed Eagle, Griffon Vulture and to some extent, Egyptian Vulture. Nevertheless, Steppe Eagles appear to cross the southern gulf in large numbers, and there must be a reason, why this heavy species, with high wing-loading, chooses the southern route to a much larger extent than the Lesser Spotted Eagle. We find it improbable that the Lesser Spotted Eagles should be less able to carry out this sea-crossing when Steppe Eagles, many Egyptian Vultures and even some Short-toed Eagles make it regularly. The explanation may be, that the Steppe Eagles are exclusively heading for the U.S.S.R. via the Caucasus and not for Eastern Europe, which is the breeding area of many Lesser Spotted Eagles. The Red Sea forms a barrier of c. 180-350 km. of open sea, a crossing eagles are not likely to make. When migrating 'north' through Africa in the spring, the eagles not following the Nile, meet the Red Sea sooner or later. For the Steppe Eagle, the shortest way from north east Africa to the breeding grounds is by a N. or N.N.E. direction, but the Red Sea leads the birds north west. As soon as possible, at the southern part of the Gulf of Suez, the Steppe Eagles turn north east, thus, the large spring concentrations of this species at Eilat. Thousands of Lesser Spotted Eagles are heading towards Europe by flying west of the Black Sea and they are not 'forced' to cross the southern part of the Gulf of Suez and to keep a N.E. direction. Therefore, perhaps this is the reason why it is so scarce at Eilat, but common in the Negev and at the Dead Sea.

The majority of the raptors migrating over Eilat must almost certainly follow a route which will take them east of the Black Sea, and via the Caucasus to U.S.S.R. The spring totals at Eilat of Steppe Buzzard, Honey Buzzard and Black Kite are at least ten times as large as the autumn totals from the Bosphorus, which tends to indicate that the Eilat stream is not bound for Europe. Steppe Eagles rarely occur at the Bosphorus and this too supports the view that birds seen at Eilat are from the east of the Black Sea. Also in the case of the Steppe Buzzard the large numbers of birds of the fox-red and blackish-brown phase indicates an eastern origin.

Observations of the raptor migration in central and north Israel are not included in this paper. It is worthwhile pointing out that the Lesser Spotted Eagle is by far the commonest migrating eagle in the spring in north Israel (in Lake Huleh Valley and the surrounding hills, P. Schlüter *in litt.*; own observations) and in central Israel (between Jerusalem and Tel Aviv, L. Nørgård Andersen *in litt.*). The Steppe Eagle is much less numerous in these parts of Israel (own observations). The evidence suggests, that the majority of Steppe Eagles crossing the Sinai Peninsula, leave Israel far south of Lake Huleh and keep a N.E. course east of the Jordan Valley on their way towards the Caucasus, while most Lesser Spotted Eagles keep a more northerly course, largely between the Mediterranean coast and the Rift Valley. A more easterly flyway is probably also taken by many Black Kites and Steppe Buzzards (and perhaps Honey Buzzards?). In north Israel, the Black Kite, and the fox-red and blackish-brown phase of the Steppe Buzzard are proportionally less numerous than in southern Israel, suggesting that many kites and buzzards have left the country farther south.

It can be tentatively concluded, that the majority of the raptors migrating over Eilat are heading for the U.S.S.R. probably via the Caucasus. The majority of birds leave Sinai by crossing the southernmost part of Wadi Araba and/or the northernmost part of the Gulf of Aqaba, and migrate northwards mainly east of the Rift Valley. Some species tend to avoid Eilat by taking a more northerly route near Suez and migrate northwards between the Mediterranean coast and the Rift Valley; notably here is the Lesser Spotted Eagle, to some extent Short-toed Eagle but also other species. Further analysis is not considered to be justified until a thorough investigation of the raptor migration at Suez has been carried out.

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SUMMARY

The spring migration of birds of prey in Sinai and southern Israel, notably at Eilat, in north west Negev and at the Dead Sea is described for the period 1969 to 1980. The migration of soaring raptors at Eilat is the heaviest hitherto recorded in the world totalling c. 764,000 birds in the spring of 1977. The commonest raptors were the Steppe Buzzard *Buteo buteo vulpinus*, 315,767 (41.3 per cent), Honey Buzzard *Pernis apivorus*, 225,952 (29.6 per cent), *Buteo/Pernis/Milvus*, 149,264 (19.5 per cent), Black Kite *Milvus migrans*, 26,770 (3.5 per cent), Steppe Eagle *Aquila nipalensis*, 19,288 (2.5 per cent), *Aquila* spp., 9,083 (1.2 per cent) and Levant Sparrowhawk *Accipiter brevipes*, 5,958 (0.8 per cent). The Booted Eagle *Hieraaetus pennatus* and the Short-toed Eagle *Circus gallicus* were relatively scarce while the Egyptian Vulture *Neophron percnopterus* was not uncommon. Harriers *Circus* spp. and falcons *Falco* spp. were rather scarce.

Contrary to previous findings, the Lesser Spotted Eagle *Aquila pomarina* is rather scarce at Eilat. Steppe Eagles constitute c. 97-98 per cent of the total eagle migration at Eilat. The route via Sinai to Eilat is probably one of the main routes of the species in the spring. The majority of Steppe Eagles are adults, peaking late February-early March while the smaller numbers of immature and juvenile birds pass mainly in mid-March/mid-April. Their migration pattern at Eilat is described. It is found, that the vast majority fly north east towards Jordan, either over or near Eilat, or over the northernmost part of the Gulf of Aqaba.

The observations of raptor migration at Ras Muhammad, north west Negev and at the Dead Sea are mentioned and discussed in relation to the migration at Eilat. The Egyptian Vulture, Short-toed Eagle, Long-legged Buzzard and Lesser Spotted Eagle (especially) are commoner at the Dead Sea than at Eilat, the latter species (at least) also being commoner in north west Negev. It is considered that the migration in north west Negev and at the Dead Sea is connected with that over Suez and the northernmost part of the Gulf of Suez. It is argued, that the migrating raptors over Eilat have crossed the southern part of the Gulf of Suez, and that they are not part of the movement that occurs at the Dead Sea. The species composition and numbers of birds differ at the two places and the migration at Eilat takes a north easterly direction towards Jordan.

The raptor migration at Eilat appears to consist largely of raptors on their way to the U.S.S.R. probably via the Caucasus, judging from the distribution of the Steppe Eagle and the fox-red and blackish-brown phase of the Steppe Buzzard (which form a large proportion of the migrants of this species). The spring totals of these species, and of Black Kite and Honey

Buzzard, compared with the autumn totals at the Bosphorus also indicate a large component of populations of more easterly origin than Eastern Europe. It is suggested that raptors, especially the Lesser Spotted Eagle, on their way to Europe west of the Black Sea, tend to choose a more northerly route over Suez, northern Sinai and north west Negev.

Finally, it is believed that the numbers of birds of prey migrating over Sinai, and even at Eilat, run into the millions in the spring.

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BIRD OBSERVATIONS ALONG THE EGYPTIAN NILE

by

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INTRODUCTION

There have been relatively few reports on the status and distribution of Egyptian birds in recent years [Hoogstraal *et al.* (1961, 1963, 1964); Ripley (1963); Hubbard & Seymour (1968)], and an updating of information provided by Meinertzhagen (1930) is needed as indicated by disagreement between our recent observations and information on distribution and abundance of Egyptian birds in Etchécopar and Hüe (1967), in Heinzel *et al.* (1972), and even in the recent first volume of the Western Palearctic Handbook (Cramp 1977). The senior author accompanied American Museum of Natural History cruises on the Egyptian Nile between Cairo and Aswan in four winters (1976-1979), as well as in the autumn of 1977. The junior author joined him in 1979. With a coterie of birdwatchers on each trip we observed birds constantly, while cruising along the river, and during travel to and visits at various archaeological sites and in the Faiyum. These observations provided data concerning many species, and particularly about mid-winter and late-winter birds of the Nile Valley. We attempt to summarise our observations, emphasising the winter data taken in four consecutive years, hoping to clarify some aspects of current bird distribution in Egypt. Both of us have extensive experience with European and African birds. We also include pertinent observations by J. Bull, W. E. Lanyon, G. Stuart Keith and F. Vuilleumier from similar tours in the autumn of 1978, and from 1979 to 1981.

PERIOD AND AREA COVERED AND METHODS USED

The dates of our observations are: 12-26 February 1976, 30 January-12 February 1977, 1-15 November 1977, 31 January-14 February 1978, and 21 February-8 March 1979. Observations were accomplished with the use of 10 x 50 field-glasses and a 15-60 power zoom-type telescope, the latter used in the Faiyum and on the deck of the cruise boat. Coverage of the main channel of the river varied in time and areas viewed in daylight, on whether we went up or down river, on the time of stopping at sites, and on the amount the boat travelled at night and when we were ashore; daylight observations averaged 55 hours per trip with especially good coverage of the Middle Nile. In this report we designate that portion of the river from Cairo to El Minya as the Lower Nile, from El Minya to Dendera as the Middle Nile, and from Dendera to Aswan as the Upper Nile.

SPECIES COMMENTED UPON

We include Egyptian species: (1) about which literature seems to present an incomplete or erroneous view of distribution and occurrence; (2) for which we offer useful biological information; (3) and, not observed but which might have been expected, or (rare species) which have been seen by others in the areas we visited. Some accounts are by species, and others, as appropriate for comparisons or to save space, by groups of species under a single heading. Of course we list only those species of whose identity we are certain. Localities are shown on a map (Figure 1).

SPECIES ACCOUNTS

Podiceps grisegena

Red-necked Grebe

Occasional in Egypt (Etchécopar & Hüe 1967). We observed two winter-plumaged birds at close range with telescope beside the boat in mid-Nile near Beni Suef 13 November 1977.

Phalacrocorax carbo

Cormorant

None on Nile or in Faiyum where it might be expected to occur (Cramp 1977: 203).



Figure 1. Localities visited along the Egyptian Nile.



(i)



(ii)

Plate 1. Steppe Eagle—Aquila nipalensis—Adults
Photographs: H. Wohlmuth and M. Müller (i) and O. Lou (ii)



Plate 2. Steppe Eagle—*Aquila nipalensis*—Immatures (above), Juveniles (below).
Photographs: H. Wohlmuth and M. Müller



(i)



(ii)



(iii)

Plate 3. Steppe Buzzard—Buteo buteo vulpinus

(i) *Adult of Fox-red type*; (ii) *Adult of blackish-brown type*; (iii) *Adult of grey/brown type (see text)*
Photographs: M. Müller and H. Wohlmuth



Plate 4. Dunn's Lark—Eremalauda dunni.
Photographed at Ein Gev, Israel by P. D. Round

*Pelecanus onocrotalus***White Pelican**

Definitely uncommon along Nile in winter (*contra* Etchécopar & Hüe 1967; also map in Cramp 1977: 229). Only widely scattered individuals (up to three per trip) seen on several but not all winter trips, resting on sand bars. Obviously migrates farther south as about 750 flew south in three flocks on 4 November 1977 between Edfu and Kom Ombo and about 100 soared northward over Aswan in company with White Storks on 6 March 1979.

*Pelecanus crispus***Dalmatian Pelican**

Observed in winter only in Sohag area 10 November 1977 (also three in same area 31 October-1 November 1978 by J. Bull). It may be common in the Nile Delta (Etchécopar & Hüe 1967: 37), but certainly not south of there.

*Ixobrychus minutus***Little Bittern**

We have seen only two (it is difficult to detect this heron without entering the reedbeds), one near Beni Suef 13 November 1977, and another south of nearby El Fashn 24 February 1979. Meinertzhagen (1930: 450) reported it as a common resident locally in Egypt, Etchécopar and Hüe (1967: 56) stated that it winters in tropical Africa, and Cramp (1977: 257) mapped it as wintering in the Delta, where it breeds. We suggest that it winters sparingly.

*Nycticorax nycticorax***Night Heron**

Small groups seen in flight or roosting in riverside trees on all trips, especially along Upper Nile; observed in November and early February, hence appears to overwinter (*contra* Etchécopar & Hüe 1967: 54), about as mapped by Cramp (1977: 263).

*Ardeola ralloides***Squacco Heron**

Reported (Cramp 1977: 275; also Meinertzhagen 1930) present in Egypt all year, but no breeding records. We observed it in small numbers (maximum 24 in 1979) on all trips, especially near Dendera and elsewhere on the Middle and Upper Nile. One perched on a nest in the middle of an active nesting colony of Cattle Egrets on Kitchener Island, near Aswan on 6 March 1979 probably was breeding, but we were unable to make further observations.

*Bubulcus ibis***Cattle Egret**

Eggs and young of this abundant heron seen 6 March on Kitchener Island near Aswan (300 pairs) and 8 March at Gizeh Zoo (over 800 pairs).

*Egretta alba***Great White Egret**

Known to winter in the Nile Delta (Meinertzhagen 1930). Our records indicate sparse wintering farther south along the Nile: one on river south of Cairo 13 February 1976, one near Beni Hassan 15 February 1976, one near Cairo 13 February 1977, three with Grey Herons *Ardea cinerea* between Esna and Edfu 9 February 1977, one between Dendera and Luxor 7 February 1978, two near El Fashn 28 October 1978 (J. Bull), and one on an islet near Beni Hassan 25 February 1979 (Keith, *pers. comm.* had three on the winter 1980 trip, and Lanyon, *pers. comm.* reported four on the Middle and Upper Nile in February 1981).

*Ardea purpurea***Purple Heron**

Sparse but regular (*contra* Cramp 1977: 313) winter resident, singly in reeds along the river, especially the Middle and Upper Nile. Only two in the winter of 1978, and three in 1977 and 1979, but several daily along the Middle Nile in 1976 (five in the winter of 1980, and three in 1981, all on the Upper Nile; *vide* Keith and Lanyon).

*Ciconia ciconia***White Stork**

Meinertzhagen (1930: 430) stated that a few overwinter. Bull (*pers. comm.*) saw four on a sand bar north of Sohag 31 October 1978, rather late for migration and north of the Wadi Qena migration route to and from the Nile. We saw five birds scattered along the Nile between Asyut

and Sohag on 26 and 27 February 1979; we are uncertain whether these were wintering birds or early migrants that had wandered down the Nile, but favour the latter explanation. Three northward soaring flocks south of Edfu on 5 March 1979 numbered 450 birds, and two flocks over Aswan 6 March 1979 contained a total of some 700 individuals. Ripley (1963) reported about 200 birds over Aswan Airport 2 March 1962. Its appearance in southern Egypt by the end of February is not unusual as Etchécopar and Hüe (1967: 59, 60) noted that the first northward migrants reach North Africa as early as December. Our local guides reported migrating White Storks as regularly occurring in spring between Aswan and Luxor; presumably most follow the Wadi Qena route to the Gulf of Suez (Cramp 1977: 331).

Plegadis falcinellus

Glossy Ibis

We observed a flock of seven in November 1977 and four were seen by J. Bull in November 1978, but the only Glossy Ibis encountered in winter was one individual feeding in a marsh between Mallawi and Beni Hassan 15 February 1976 (Lanyon, *pers. comm.*, had a flock of six at Beni Hassan 15 February 1981). Its low numbers reflect the contraction of the species' range noted by Cramp (1977: 340).

Platalea leucorodia

Spoonbill

Cramp (1977: 354) mentioned wintering in lower Egypt and Sudan, but his map shows some wintering elsewhere on the Nile. On all trips we saw Spoonbills resting on sand bars in small groups or flocks of up to 250, with the highest total on any trip of 500. They are most frequently seen in the Asyut-Sohag-El Balyana region (Middle Nile), but we have found them south to Aswan (one newly dead bird on Seheil Island, 3 November 1977).

Cygnus cygnus

Whooper Swan

Swans rarely reach North Africa. This species is cited as irregular in Egypt by Etchécopar and Hüe (1967: 75), and as accidental by Cramp (1977: 386). We were surprised to find a Whooper Swan nine miles north of Abu Tig 17 February 1976, standing on a sand bar beside two Egyptian Geese. It faced about as the boat passed, affording a clear look at its bill with both binoculars and telescope.

Anser albifrons

White-fronted Goose

Noted by Etchécopar and Hüe (1967: 77) as the commonest goose wintering in Egypt, but as Meinertzhagen (1930: 458) remarked, "never abundant and rarely common". Cramp (1977: 406) stated that only in some years do birds reach Egypt (from Turkey). There is no sign of northern geese wintering in numbers in the Faiyum or along the Nile. We have seen only three 13 February 1976 between El Wasta and Beni Suef, and one 27 February 1979 with many Egyptian Geese just south of Tahta.

Alopochen aegyptiacus

Egyptian Goose

Cramp (1977: 448) mentioned that there are no recent reports; indications in the literature that it is now restricted to southern Egypt are borne out by our observations. This goose is common, with winter flocks of up to 500 and occasionally to 2,000 (as many as 10,000-11,000 seen in 1976) from Sohag southward. It is uncommon between Asyut and Sohag, and we have seen a few as far north as Beni Mazar on the Lower Nile and El Till on the Middle Nile but not north of the former, nor in the Faiyum, where there is much hunting. We saw no breeding activity.

Tadorna spp.

Ruddy Shelducks and Shelducks

Meinertzhagen (1930) reported Ruddy Shelducks *T. ferruginea* fairly common in winter throughout the valley, but there is "little recent information" (Cramp 1977: 452). They are uncommon in autumn and winter on the Nile, where we have seen 11 in all, and none have been observed in the Faiyum. Our records are: three pairs amid other ducks between Beni Hassan and El Till, 15 February 1976; four among wigeon in the Sohag area, 4 February 1977;

and a single male with Teal on an island south of El Till, 26 February 1979. We failed to see Shelducks *T. tadorna* on the trips.

Plectropterus gambensis

Spur-winged Goose

None has been seen on five trips to Abu Simbel, where Ripley (1963) observed several in March 1962.

Anatidae

Dabbling Ducks

Wintering ducks vary greatly in numbers from year to year, with about as many seen in 1976 (perhaps 40,000 in total) as on all other trips combined. It is apparent that movement into the region often takes place very late in autumn or early winter, as our autumn trips have produced far fewer ducks than have the winter trips. Generally Teal *Anas crecca* are the most common dabbling ducks, widely dispersed in small to large flocks and foraging even in small ponds near humans and livestock. Pintail *Anas acuta* usually vie with European Wigeon *Anas penelope* as the second most common dabbling duck, but Pintail outnumbered Teal in 1976, and European Wigeon were more numerous than Pintail (but not Teal) in 1979. Mallard *Anas platyrhynchos* are present in fair numbers, making up loose, usually small flocks in the river, and Shoveler *Anas clypeata* are about as numerous. The Gadwall *Anas strepera* is usually uncommon, only a few being seen on most trips, mainly with Mallard or wigeons; only one was seen in 1979, but in the winter of 1977 we observed about 500 Gadwall.

Marmaronetta angustirostris

Marbled Teal

There is little information about this species in Egypt, and statements and maps do not show its occurrence along the Nile south of Cairo. It breeds, or used to do so, in the Faiyum, Wadi Natrun, and Dakhla Oasis (Meinertzhagen 1930). We have seen one or several in the Nile on each winter trip; except for one at Beni Suef all have been in the Middle Nile, as far south as El Balyana and Nag Hamadi.

Anatidae

Diving ducks

These ducks vary in numbers more than do dabbling ducks. We saw 70,000 or more in 1976 when flocks occurred continuously along great stretches of river, especially between Sohag and Qena. Tufted Ducks *Aythya fuligula* are most numerous (common in winter on the Middle and Upper Nile) and Pochards *Aythya ferina* follow in second place. Ferruginous Ducks *Aythya nyroca* and Red-crested Pochards *Netta rufina* are uncommon in winter. Ferruginous Ducks have been seen in small numbers (two to 20) along the Middle and Upper Nile each winter. We encountered northward-flying flocks totalling about 450 birds between Kom Ombo and Aswan on 5-6 March 1979. Red-crested Pochards were observed between Beni Hassan and El Till (five birds) 15 February 1976, near Edfu (five birds) 9 February 1977, and one was among Tufted Ducks between El Kab and Esna, 4 February 1978; none was seen on autumn trips, or in the winter of 1979 (Lanyon, *pers. comm.* had 20 between Esna and Edfu 22 February 1981). *Netta rufina* is stated by Cramp (1977: 556) to winter only in Lower Egypt although his map and Meinertzhagen (1930) indicate occurrence in Upper Egypt.

Elanus caeruleus

Black-winged Kite

Resident according to Meinertzhagen (1930: 412) and Cramp (1980: 24), but Etchécopar and Hüe (1967: 142) suggested that it may be a partial migrant. In winter it is common in cultivated areas along the Upper Nile, and is regular north to Sohag; farther north we have in two winters seen several between Meidum and Beni Suef, but not elsewhere in the Lower Nile (where we have seen a few on the autumn trips). Possibly it is diminishing in numbers in northern Egypt, rather than migrating southward, for all individuals observed were solitary or in pairs and seemed dispersed as if on territory, as they should be if breeding takes place from February to April as indicated by Meinertzhagen.

*Milvus migrans***Black Kite**

Relatively common near towns in Upper Egypt during winter; local north of Sohag to Cairo. Feeding concentrations over garbage thrown into the river frequently contained black-billed birds, most of which presumably are immatures of the resident yellow-billed race *aegyptius*, but we have seen such numbers and even large groups of black-billed birds about Aswan that suggest over-wintering of *M. migrans migrans* (Cramp 1980: 30 states "wintering mainly in Ethiopian Africa").

Accipitridae

Vultures

Only Egyptian Vultures *Neophron percnopterus* were seen regularly but uncommonly except at Abu Simbel, where several were usually present. Other than at Abu Simbel, we have seen these: one adult above the hill west of Aswan where Black Kite often gather to sit on the sand, 10 February 1977; an adult and an immature on a sandy strip near Kom Ombo, 5 November 1977; a very dirty adult on a sand mound north of El Balyana, 9 February 1978 (the farthest north we have seen the species); and five gliding over the desert near Aswan Airport, 7 March 1979. All of these could be migrants from dates in Cramp (1980: 65-67). We saw a Griffon Vulture *Gyps fulvus* above the Aswan High Dam, 23 February 1976; other than that we can report only a possible sighting at great distance over the Gebel Selin Hills, 27 February 1979. Thus it appears that vultures now are uncommon (Egyptian) to rare (all others) along the Nile Valley of Egypt, with breeding uncertain.

*Circus gallicus***Short-toed Eagle**

One dark-throated probable migrant flying north over the boat near Nag Hamadi, 28 February 1979 is our only record.

Circus spp.**Harriers**

None are common, but the Marsh Harrier *Circus aeruginosus* is most numerous; of 20 seen by Short on his five trips all but one were females, suggesting that females might winter farther north than males. Dates from late January and February suggest wintering. Hen Harriers *C. cyaneus* have been seen beside the boat at Edfu (4 November 1977) and Kom Ombo (5 March 1979), both dark females with the strongly barred tail and broad rump patch of this species. Pallid Harriers *C. macrourus* include at least three males and two females, all seen along the Middle Nile in the autumn of 1977 and winter of 1978.

Buteo spp.**Buzzards**

We identified two heavily marked Buzzards *Buteo buteo*, one at Luxor, 20 February 1976, and another over Aswan, 3 November 1977, both showing the fully barred tail with a broadened terminal band not seen in immatures of the Long-legged Buzzard *Buteo rufinus*. Not known to winter according to Meinertzhagen (1930), Etchécopar and Hüe (1967) and Cramp's (1980: 179) map, though *B. b. vulpinus* is stated to winter in "North Africa" in small numbers by Cramp (1980: 180). Up to four or five Long-legged Buzzards have been seen on each of three winter and one autumn trips.

*Aquila clanga/pomarina***Spotted and Lesser Spotted Eagle**

Neither of these can be called "common" or "numerous" (*contra* Etchécopar and Hüe 1967: 122-123; Cramp (1980) lists *pomarina* as accidental in Egypt). Birds seen closely and identified as Spotted Eagles were from near Aswan, south of Edfu, north of Manfalut, near El Balyana, and near Sohag (two). An eagle high over the desert south of Sohag 4 February 1977, was one or the other of these species. Two Lesser Spotted Eagles passed northward one after another low over the boat, 27 February 1979, along the cliffs of Gebel Selin.

*Aquila rapax***Tawny Eagle**

Eight observed on five of six trips. Localities are Aswan, between Esna and Edfu, between Luxor and Dendera, Dendera, near El Balyana, Asyut and El Fashn. Several of these were

very pale grey-tan (North African *belisarius*, possibly) others were dark; three were on the ground, perched or feeding beside the Nile. Seems more frequent than "accidental" (Cramp 1980: 218).

Aquila chrysaetos

Golden Eagle

Only two sightings under good conditions for identification, one immature north of El Balyana, 9 February, and an immature near Sohag, 31 October 1978 (J. Bull). We provide details on the occurrence of large raptors because so few were seen in total.

Hieraaetus spp.

Booted Eagles *H. pennatus* are not numerous (listed by Cramp 1980: 253 as occasional), but up to two or three pale-phased adults have been noted on all winter trips except in 1977, when we saw none. Bonelli's Eagles *H. fasciatus* are uncommon in winter (Meinertzhagen 1930), so we give localities and dates: an adult observed perched and overhead in flight at El Amarna cliffs, 30 October 1978 (J. Bull); an adult near the boat by desert cliffs south of Sohag, 27 February 1979; and an adult flying across the river near Edfu, 5 March 1979. A distant eagle over the Beni Hassan cliffs, 26 February 1979, may have been an immature of this species. All records are in the autumn and winter of 1978-1979, possibly suggesting an unusual movement in that year.

Pandion haliaetus

Osprey

Winters in small numbers on the Middle Nile and especially the Upper Nile; one to three observed per trip. One at Aswan on 23 February 1976 dropped onto a small duck, probably a Teal, swimming and feeding at the river's edge, and successfully carried it off.

Falco spp.

Kestrels

Meinertzhagen (1930: 383) stated that the Lesser Kestrel *F. naumanni* does not overwinter, but Etchécopar and Hüe (1967: 166) allowed that some do so (its winter range is mapped north to the Egyptian-Sudanese border by Cramp 1980: 283). We have seen six on three winter trips. A male on the wall of the Citadel in Cairo on 12 February 1976 allowed close approach; we even saw its pale claws. A pair circled amid Pallid Swifts over the temple at Edfu, 9 February 1977. These are unlikely to represent migrants as the species migrates later and usually in flocks (Cramp 1980). Two sweeping over the east bank of the Nile, 27 February 1979, south of Sohag and a male, 1 March 1979, north of Dendera possibly were early spring migrants. None was seen on the autumn trips, and Hoogstraal *et al.* (1961) noted that it is much more common in spring than autumn. The Kestrel *F. tinnunculus* is abundant (as many as 30 daily may be seen from a moving boat) and seems to have replaced larger falcons at most temples and many pyramids. Nest construction was seen in February of each year. Five Kestrels constantly attacked but failed to rout an Eagle Owl *Bubo bubo* on the Medium pyramid, 13 November 1977.

Falco columbarius

Merlin

Observed on all but one trip (not in winter 1977), usually two to five per trip, as far south as Aswan (Cramp 1980: 311 shows it wintering only to the vicinity of Cairo). One perched on a small dune beside a heavily travelled, paved highway in open desert along the Cairo-Faiyum road, 15 November 1977, unusual in its choice of habitat. Two (possibly three) chased each other vigorously among and within tall eucalyptus trees at El Aiyat, 12 February 1978.

Falco subbuteo

Hobby

Not known to winter (Meinertzhagen 1930: 375, Etchécopar & Hüe 1967: 158), and supposed to overfly North Africa in migration (Cramp 1980: 319-320, who also states that the northward migration from East Africa begins in March). An adult flew beside the boat south of Luxor, 8 February 1977, and an immature sortied from the front pylon of Karnak's Amun Temple for the better part of the afternoon, 1 March 1979. Single birds were seen, 4, 5 and 9 November 1977 at points along the Middle and Upper Nile.

*Falco concolor***Sooty Falcon**

J. Bull observed two pale-phased adults, one 29 October 1978 in semi-desert near El Ashmunein and another close to the boat, 31 October 1978, near Sohag. A pale-phased adult crossed over the Nile south of El Till, 26 February 1979, and a seemingly all-black falcon seen in gathering dust near El Balyana, 28 February 1979, probably was a dark-phased Sooty Falcon (it is unlikely that it could represent the Red-footed Falcon *Falco verpertinus*, which does not winter in Egypt and is a late spring migrant, Cramp 1980). Not seen about pyramids or temples where sometimes noted formerly (Meinertzhagen 1930).

*Falco biarmicus***Lanner Falcon**

Uncommon. Localities at which it was observed (one individual each) on three of four winter trips are: the desert outskirts of western Gizeh, the Meidum pyramid, the desert near Tuna el Gebel, the El Amarna cliffs (both 1977 and 1979), the Nile (desert edge) north of Asyut, the Gebel Selin cliffs, and El Kab. At El Amarna 2 February 1977 a Lanner surprised by the group dropped an already killed, small green snake (unidentified) at our feet as it dashed away. Lanners also were seen at Dendera on both autumn trips and in early November 1977 also at at Saqqara, the Luxor Temple, and the Silsileh cliffs.

*Falco cherrug***Saker Falcon**

On leaving the Dendera temple, where we had just seen a Lanner Falcon 8 November 1977, we noticed a commotion in fields to the south. Swallows, House Sparrows, pipits, other small birds, and Cattle Egrets bolted in all directions. We watched the approach of a pale brown Saker Falcon, substantially larger than the Lanner we had just seen, flying low, just over the tops of the plants. It made no pass at prey, but rose to the top of a palm tree, and perched briefly, affording us an excellent view, before it flew off at the approach of a bus. No other was seen. Accidental in Egypt (Cramp 1980: 345).

*Falco pelegrinoides***Barbary Falcon**

Rare; one seen over the boat 16 February 1976 north of Asyut; otherwise a pair seen 6 November 1977 and possibly the same pair seen 5 February 1978 flying along, and perched on the cliffs above Deir el Bahari, Thebes (also seen there winter 1980 by Keith, and 1981 by Lanyon).

Phasianidae

Partridge and Quail

Sand Partridges *Ammoperdix heyi* were seen twice (11 February 1978, 26 February 1979) at the rocky edge of the Royal Wadi, El Amarna. The Quail *Coturnix coturnix* probably is common but we have had few opportunities to search for it; one was flushed from the edge of a field west of Beni Suef 12 February 1978 (Cramp 1980: 499 does not show it wintering along the Egyptian Nile).

Rallidae

Rails

Water Rails *Rallus aquaticus* have been seen on four occasions as far south as Luxor, presumably wintering. Two Corncrakes *Crex crex* ran with several Moorhens along the edge of a field, between it and a reedbed south of Beni Hassan 11 February 1978. This crane winters infrequently in North Africa (Etchécopar & Hüe 1967); Meinertzhagen (1930: 636) noted emphatically that it does not overwinter, and Hoogstraal *et al.* (1964) did not mention it as wintering in Egypt. That it may do so sporadically is suggested by former wintering as far north as the British Isles (Cramp 1980: 571).

*Porphyrio porphyrio***Purple Gallinule**

Held to be resident only in the Nile Delta (Cramp 1980: 593), though Meinertzhagen (1930: 642) noted that it strays to the Suez Canal. We first saw it along the Nile on an island opposite Beni Hassan 11 February 1978. Since then our colleagues have seen: seven between El Minya and Kom Ombo 17-26 October 1979 (F. Vuilleumier, *pers. comm.*; the Kom Ombo birds

on 17 October included a first-year bird), eight between El Fashn and El Balyana between 23 February and 4 March 1980 (G. Stuart Keith, *pers. comm.*), and no fewer than 15 between Helwan and Asyut 13-16 February 1981 (W. E. Lanyon, *pers. comm.*).

Grus grus

Crane

None seen in winter. Our autumn trips were late for them, but we saw six circling over Aswan 3 November 1977 and 16 passed south over Kom Ombo 6 November 1978 (J. Bull, *pers. comm.*).

Himantopus himantopus

Black-winged Stilt

Less common in winter than one might infer from Meinertzhagen (1930: 574), about as scarce as Etchécopar and Hüe (1967: 257; "a few winter") indicated; we saw one at Kom Ombo 3 February 1978, another was reported by I. Tattersall in the Faiyum 14 February 1978, and four were observed near El Till, Sohag and Kom Ombo between 26 February and 5 March 1979.

Recurvirostra avocetta

Avocet

None seen in winter, but J. Bull (*pers. comm.*) saw a flock of over 20, probably migrants, on a mud bar near Sohag 31 October 1978.

Burhinus oedicnemus

Stone Curlew

Occasional along the Nile on sandy islands, where much outnumbered by the next species. Elsewhere we have seen two 16 February 1976 in desert between El Till and El Amarna, three in sparse desert-edge vegetation at Abusir 8 March 1979, and one in a sandy field in the Faiyum 22 February 1979.

Burhinus senegalensis

Senegal Thick-knee

The commoner stone curlew along the Nile, heard nightly even in the heart of Cairo. We have many observations from all along the river on all trips: the birds usually are seen sitting quietly under a bush or crouched on a rock pile jutting into the river.

Charadriidae

Plovers and Lapwings

Ringed Plovers *Charadrius hiaticula* and Little Ringed Plovers *C. dubius* and in lesser numbers Kentish Plovers *C. alexandrinus*, Kittlitz's Plovers *C. pecuarius* and Grey Plovers *Pluvialis squatarola* have been observed. One Greater Sand Plover *C. leschenaultii* was seen 13 November 1977 north of Beni Hassan. The Spur-winged Plover *Hoplopterus spinosus* is abundant along the Upper and Middle Nile, and usually less so on the Lower Nile and in the Faiyum. On 12 February 1978 at El Aiyat we watched a pair for three-quarters of an hour about a small pool beside the Nile. Both birds systematically followed and attacked three Ringed Plovers, repeatedly driving them into an adjacent sandy area; whenever one of the smaller plovers ventured to the pool's edge a Spur-wing attacked it. In contrast the Spur-wings ignored White Wagtails *Motacilla alba*. The pair of Spur-wings copulated once, and seemed to defend the small pond territorially. One Sociable Plover *Chettusia gregaria* was noted 15 November 1977 in a Faiyum field with Lapwings. Lapwings *Vanellus vanellus* vary yearly in numbers; in the winter of 1978 they were common in the Faiyum and along the Nile south as far as Asyut, whereas in the winter of 1979 only 15 were observed in fields near Beni Suef on 24 February. We have seen it as far south as Luxor (7 February 1978).

Scolopacidae

Sandpipers

We have observed the common wintering stints, snipe, godwits, and sandpipers mentioned by Meinertzhagen (1930). The Curlew *Numenius arquata* is not common according to Meinertzhagen; we saw 12 on a river island south of Kom Ombo 11 February 1977, seven from 7-10 February 1978 in the Middle Nile, and several small flocks in the Faiyum and single individuals in the Middle Nile 7 and 9 November 1977. Meinertzhagen (1930: 580) had no

reports of Whimbrel *Numenius phaeopus* from outside the Delta; one was in a flock of nine Curlews in the Faiyum 15 November 1977, and J. Bull (*pers. comm.*) observed one calling as it flew south over El Till 30 October 1978. We flushed six Spotted Redshanks *Tringa erythropus* among Redshanks *T. totanus* at Lake Qarun 31 January 1977, beyond the Delta where it winters (Meinertzhagen 1930: 565). The Ruff *Philomachus pugnax* also overwinters in the Delta (Meinertzhagen 1930:561). We saw a male in partial breeding plumage on a sand bar off Kom Ombo 23 February 1976, a winter-plumaged apparent male at that same site 10 February 1977 (we also had one there 4 November 1977, and Lanyon reported two there 23 February 1981), one fed with Greenshanks *Tringa nebularia* south of Beni Hassan 11 February 1978, and two were beside Lake Qarun 22 February 1979. Two fast-flying flocks totalling 60 birds flew north between Kom Ombo and Aswan 5 March 1979, probably representing early spring migrants. Meinertzhagen (1930: 556) mentioned a lack of records of Curlew Sandpipers *Calidris ferruginea* from the Faiyum; we saw one and possibly two among Dunlins *C. alpina* at Lake Qarun 15 November 1977, and again there 22 February 1979.

Arenaria interpres

Turnstone

"Rather rare" inland in North Africa (Etchécopar & Hüe 1967: 224), but one (winter-plumaged) was encountered on a stony beach beside Lake Qarun 31 January 1977.

Laridae

Gulls

Literally 999 of 1,000 gulls we have seen in Egypt have been Black-headed Gulls *Larus ridibundus*, which abound in winter in the Faiyum and along the Nile, although the bulk of them do not arrive before November. Lesser Black-backed Gulls *Larus fuscus fuscus* (all blackish grey-brown above) have been seen: 11 on 22 February 1976 between Esna and Edfu; one in that same area 9 February 1977; and one near Edfu 5 November 1978 by J. Bull. Two pale-backed, yellow-legged Herring Gulls *Larus argentatus* in Cairo among Black-headed Gulls feeding on garbage beside the Nile 12 February 1976 are the only ones we have seen; they seem markedly less common in the Faiyum and Nile Valley in winter than in Meinertzhagen's (1930:608) time. A few Common Gulls *Larus canus* among Black-headed Gulls at Lake Qarun 14 February 1976 were all we have seen, despite use of the telescope to check gulls at Lake Qarun on each trip. Diligent search for the Great Black-headed Gull *Larus ichthyaetus* in the Faiyum (*cf.* Meinertzhagen 1930:615) failed to disclose it, but one was observed flying upriver 4 February 1978 between El Kab and Edfu. One Little Gull *Larus minutus* was seen with Black-headed Gulls near Asyut 4 February 1977, and two (one immature) were among Black-headed Gulls at Lake Qarun 15 November 1977.

Sternidae

Terns

Only the Gull-billed Tern *Gelochelidon nilotica* should be expected in winter inland in Egypt (Meinertzhagen 1930). We have seen but three on a sand bar between Kom Ombo and Aswan 5 March 1979. However, we have seen other terns as follows. A White-winged Black Tern *Chlidonias leucopterus* flew over a reedbed between El Kab and Esna 4 February 1978. J. Bull (*pers. comm.*) saw eight in two flocks near Aswan on the late date of 5 November 1978. Meinertzhagen (1930: 593) cited one January specimen from Egypt. Black Terns *Chlidonias niger* were seen in autumn as late as 13 November 1977 near Beni Suef, and we saw three in February 1978, two together in a reedy stretch of river between Luxor and Dendera on the 7 and one alone beside the boat on the 11 between El Till and Beni Hassan. On 10 February 1977 we observed a Common Tern *Sterna hirundo* for over an hour as it stood among Black-headed Gulls at Kom Ombo.

Rynchopidae

Skimmers

Although we saw none, F. Vuilleumier and his group encountered a flock of 40 African Skimmers *Rynchops flavirostris* off Kom Ombo 17 October 1979; apparently it last was reported from Egypt in 1875 (Meinertzhagen 1930).

Pteroclididae

Sandgrouse

The Chestnut-bellied Sandgrouse *Pterocles exustus* is reportedly scarce north of Luxor along the Nile (Meinertzhagen 1930: 519). We saw about 10 winging along the Nile's east bank between Esna and Edfu 4 March 1979, slightly south of where it has previously been reported, although it occurs in Sudan and might be expected in southern Egypt. Otherwise only Spotted Sandgrouse *P. senegallus* have been seen (in desert washes of El Amarna on three trips, near El Fashn, and in desert along the Cairo-Faiyum road).

Streptopelia spp.

Doves

Turtle Doves *S. turtur* are not known to overwinter, although noted as possibly breeding at Luxor, Qena and Aswan, southern Egypt by Meinertzhagen (1930: 508). Our records include: one at Seheil Island, Aswan, 11 February 1977 (J. Bull, *pers. comm.*, also saw it there 7 November 1978); one among Palm Doves *S. senegalensis* on the bank of the Nile 27 February 1979 south of Sohag; a singing Turtle Dove bowed and sang to a Palm Dove in the garden of the Winter Palace Hotel, Luxor, 3 March 1979 (also seen there by Keith in late February 1980, and by Lanyon 21 February 1981); one in trees at Kom Ombo 5 March; and two at Aswan (one singing on Kitchener Island) 6 March 1979. Turtle Doves seem to overwinter sporadically in southern Egypt and they very likely breed there locally. A pair of ubiquitous Palm Doves were incubating eggs as early as 4 February 1977 inside the dome of Sohag's Red Monastery.

Psittacula krameri

Rose-ringed Parakeet

Introduced and more widespread about Cairo in the 1920s (Meinertzhagen 1930: 348) than now. They are at the Gizeh Zoo and botanical garden regularly, and seem to be thriving there (40 seen in an hour 8 March 1979), contrary to Ethécopar and Hüe's (1967: 335) grave doubts about their survival in Egypt.

Clamator glandarius

Great Spotted Cuckoo

The "marked northward passage" (Meinertzhagen 1930: 346) of this cuckoo in early February is not reflected by our few observations, namely one in a patch of dense woods near Lake Qaran 14 February 1976, another moving from tree to tree at Kom Ombo 3 February 1978, and one moving north in the line of trees bordering the Nile across the road from the Luxor Temple 6 February 1978.

Cuculus canorus

Cuckoo

A very early migrant sang at Kom Ombo 5 March 1979; Meinertzhagen (1930: 344) gave 30 March as about when the first birds appear.

Centropus senegalensis

Senegal Coucal

Difficult at times to locate, depending upon the growth of crops; one 14 February 1976 in the Faiyum, and four at three sites back from Lake Qaran in the Faiyum 31 January 1977. It resides in the Faiyum, about Cairo and in the Delta (Meinertzhagen 1930: 342); J. Bull (*pers. comm.*) photographed one in a dense tree at Beni Suef, well south of Cairo on 28 October 1978. G. S. Keith saw two near Beni Suef 23 February 1980, and remarkably heard one calling on Kitchener Island, Aswan, 4 March 1980.

Tytonidae, Strigidae

Owls

We observed few owls, mainly Little Owls *Athene noctua* about some temples and pyramids. Barn Owls *Tyto alba* several times foraged in the floodlights of the Sound and Light show at the Gizeh pyramids. Eagle Owls *Bubo bubo* are seen, but not regularly, at the Meidum and Saqqara pyramids; pellets believed to be an Eagle Owl's regularly are found beneath the Stela of Ahketaton near Tuna el Gebel.

Apodidae**Swifts**

Large flocks of swifts, in places numbering many thousands along several miles of river, regularly are seen along the Nile in winter. Most are Pallid Swifts *Apus pallidus*, but in proper light we frequently have noted scattered faster flying, dark birds that in all likelihood were Swifts *Apus apus*. The latter winter in Sudan (Cave & Macdonald 1955) and it seems reasonable that some may join wintering Pallid Swift flocks in Egypt. Among Pallid Swifts in the Valley of the Kings, Thebes, on 7 February 1977 was an Alpine Swift *Apus melba*. There appear to be no published winter records of this species, although it winters to some extent in Sudan (Cave & Macdonald 1955: 223).

Alcedinidae**Kingfishers**

The Kingfisher's *Alcedo atthis* winter status in Egypt south of the Delta appears to have changed since Meinertzhagen's (1930: 337) time, when it was "well distributed" in the Faiyum, the Delta and the Nile north of Beni Suef. We have seen only two, one along the Nile just south of Cairo 13 February 1976, the other in an unlikely location, Elephantine Island at Aswan 2 February 1978. Although the Pied Kingfisher *Ceryle rudis* is considered an "abundant resident" in the Faiyum, the Delta and throughout the Nile (Meinertzhagen 1930: 336), we consistently have failed to find the species in the Lower Nile in autumn or in winter. We first encounter Pied Kingfishers in the Sohag region of the Middle Nile, and from there southward; they become common south of El Balyana and sometimes are abundant in parts of the Upper Nile. The farthest north Pied Kingfishers have been seen on three autumn and six winter trips is at Tahta.

Merops orientalis**Little Green Bee-eater**

Apparently this species moves about after breeding. Its numbers vary from year to year. It is most common in the Lower Nile and Faiyum, generally, but we have seen it every winter on Kitchener Island, Aswan, and at Dendera, Luxor, Kom Ombo, and some points in between. On a cold morning (9 February 1977) 30 Little Green Bee-eaters seemingly sunned themselves perched tightly clumped together on a branch of a tall tree at El Kab.

Upupa epops**Hoopoe**

Singing by first week in February, nesting by late February (including holes in Nile banks), and carrying food to young in a natural tree cavity in Luxor 5 March 1979.

Alaudidae**Larks**

Six species observed. We remark only about Bar-tailed Desert Larks *Ammomanes cincturus* and Desert Larks *A. deserti*; where seen at the same site on the same day (e.g., El Amarna, Beni Hassan), the former has been in flatter, sandy desert, and the latter in stony, hilly desert. However, we have seen them separately in the same habitat, as in the Valley of the Kings (where both may be drawn to water).

Riparia riparia**Sand Martin**

Neither Meinertzhagen (1930) nor Etchécopar and Hüe (1967: 405) accurately treated the distribution of this swallow, which occurs in places in tremendous numbers, rarely perhaps 50,000 (more usually several thousand) being seen within 10 miles of the river (e.g., near Nag Hamadi 8 February 1978). Nesting colonies become active in early February at least south to Luxor; clusters of its bank holes are found south to Aswan, and it must breed throughout the valley. Breeding birds are localised about a colony; the wintering birds roost in reeds of river islands, noisily departing en masse at about dawn.

Ptyonoprogne* spp.*African Rock Martin
and Crag Martin**

African Rock Martin *P. fuligula* and Crag Martin *P. rupestris*, proved difficult to distinguish in varying, usually bright light. Most birds lacked the throat markings of *rupestris*, and

were pale, thus *fuligula*. Both species are found throughout the Nile Valley and at nearby temple and pyramids, *fuligula* usually outnumbering *rupestris*.

Hirundo rustica

Swallow

Etchécopar and Hüe (1967: 400) state that the distinctive Egyptian race *savignii* breeds in the Nile Delta, the Faiyum, and the Nile Valley "at least as far as Luxor". We have seen birds gathering mud for nest building in late February and early March south to Kom Ombo, well south of Luxor.

Delichon urbica

House Martin

Held to be absent in winter (Meinertzhagen 1930: 308, Etchécopar & Hüe 1967: 406-407), but seen with Swallows on three of four winter trips. Records are: at least three between Luxor and Esna 21 February 1976; one at Kom Ombo 3 February 1978, and another near Dendera 8 February 1978 (these dates are early for migrants); and two 25 February 1979 at El Ashmunein. Keith (*pers. comm.*) saw one with Sand Martins at Beni Hassan 24 February 1980.

Luscinia svecica

Bluethroat

Winters in Egypt but Meinertzhagen gave no localities south of the Faiyum and Delta. We regularly saw it in gardens about Aswan (seen yearly, including 1980) and Luxor and also have observed it at these southern Egyptian localities: Kom Ombo, Dendera, Abydos, El Balyana, and Sohag. Females generally outnumbered males; most of the latter with sufficient pattern developed are of the red-spotted forms.

Phoenicurus ochruros

Black Redstart

Meinertzhagen (1930: 292) indicated wintering only in the Delta, but Etchécopar and Hüe (1967: 467) stated that it winters in Egypt "and southwards"—it winters in Sudan (Cave & Macdonald 1955). We have seen males near Saqqara 13 February 1976 and beside Meidum pyramid 13 November 1977, and females at Karanis 15 November 1977 and at the desert edge of El Till village 11 February 1978 (also seen at Karanis and El Ashmunein in February 1980, Keith, *pers. comm.*).

Phoenicurus phoenicurus

Redstart

Not known to winter (Meinertzhagen 1930:289; Hoogstraal *et al.* 1961:201; Etchécopar & Hüe 1967:465); but one or more seen on every winter trip. Records are: male 13 February 1976, Memphis; two 11 February 1977, Cataract Hotel, Aswan; female 2 February 1978, Kitchener Island, Aswan; male 13 February 1978, Kom Ombo; female 7 February 1978, Winter Palace Hotel garden, Luxor; male 22 February 1979 near Lake Qarun, and, female 1 March 1979, Etap Hotel garden, Luxor.

Cercomela melanura

Blackstart

Not seen by us but we note observations of a male near Philae Island, Aswan 16 October 1979 by F. Vuilleumier (*pers. comm.*), and a male at Saqqara 22 February 1980 by G. Stuart Keith (*pers. comm.*), both west of its reported range (Etchécopar & Hüe 1967).

Saxicola torquata

Stonechat

A few seen on three trips to the Faiyum, where known to winter; otherwise observed only on an island in the Nile near Beni Hassan 25 February 1979.

Oenanthe spp.

Wheatears

Observations reported here mainly are based upon identification of males only. Most wheatears are encountered individually. It is not unusual to find two or three scattered about a large archeological site, such as Medinet Habu at Thebes, representing two or even three species. There is variation in numbers and in species encountered from year to year. Regularly seen on each trip at diverse sites are White-crowned Black Wheatears (*O. leucopyga*, especially at Abu Simbel and Aswan), Desert Wheatears *O. deserti*, and Isabelline Wheatears *O. isabellina*.

*Oenanthe oenanthe***Wheatear**

Held to be only a migrant in Egypt (Meinertzhagen 1930, Etchécopar & Hüe 1967), with spring migration commencing in early March (Hoogstraal *et al.* 1961:200), but winters commonly throughout Sudan (Cave & Macdonald 1955:269) and a few may winter in Egypt. On 2 February 1977 one was outside the village of El Till, and another was near Lake Qarun 22 February 1979: probably early migrants are 11 others seen near the river in 1979 from 24 February (at Beni Suef) into March, south as far as Aswan.

*Oenanthe pleschanka***Pied Wheatear**

Hoogstraal *et al.* (1964:357) indicated that this species is only a migrant in Egypt. Since its Sudanese wintering area is mainly in the north (Cave & Macdonald 1955:271), this wheatear too is likely to winter in southern Egypt. Males have been seen in a small wadi near El Amarna 2 February 1977, and beside the Dendera temple 8 February 1978; also we observed one at El Amarna on 12 November 1977, J. Bull saw one there on 30 October 1978, G. S. Keith noted one at Beni Hassan 24 February 1980, and W. E. Lanyon had it at Beni Hassan, El Amarna and Thebes 15-19 February 1981.

*Oenanthe hispanica***Black-eared Wheatear**

Known to winter commonly in northern Sudan (Cave & Macdonald 1955: 271), and hence likely winters in southern Egypt as Meinertzhagen (1930:268) suggested. A male foraged at the desert fringe of a field near El Kab 4 February 1978. Two near Meidum pyramid 24 February 1979, and one at Abydos 28 February 1979, could represent migrants, as Meinertzhagen (*loc. cit.*) noted many between Aswan and Wadi Halfa "towards the beginning of February."

*Oenanthe moesta***Red-rumped Wheatear**

Supposedly resident in north western and north eastern Egypt (Meinertzhagen 1930: 275, 276; Etchécopar & Hüe 1967:453), but a loose group of perhaps five (including at least two males and one female) moved about rocky debris near Chephron Pyramid, Gizeh, 31 January 1977. Males are distinctive with their mottled wings and reddish rump and tail base. The female was rusty-headed and had a buffy white rump with rufous only at the sides of the rump near the tail base.

*Oenanthe xanthopyrmyna***Red-tailed Wheatear**

A male of this rare wheatear was chased by a Mourning Wheatear *O. lugens* in low xeric scrub at Medinet Habu, Thebes, on 7 February 1977. We were able to observe the mixed rusty and white bases of its outer rectrices (see Etchécopar & Hüe 1967:451). A possible female *xanthopyrmyna* was seen at Gizeh 31 January 1978 (rusty in base of tail, grey-brown head). Keith (*pers. comm.*) saw it at Meidum 23 February 1980, and also at Medinet Habu 29 February 1980. There exist few February and March Egyptian specimens of this Asian wheatear (Meinertzhagen 1930:277).

*Oenanthe lugens***Mourning Wheatear**

Seen regularly (on five of six trips), and readily distinguished from similar species (*e.g.* Pied Wheatear *O. pleschanka*) by its buffy undertail coverts; attention is often focused on these by its habit of upwardly twitching the tail. It resides mainly east of the Nile (Meinertzhagen 1930); we have seen it on the west side at Saqqara (once), Meidum (once), and Thebes (twice at Valley of the Kings and thrice at Medinet Habu).

*Oenanthe monacha***Hooded Wheatear**

Found east of the Nile (Meinertzhagen 1930:281), and seen in the desert hills of Beni Hassan, at El Amarna (several times), at El Kab, in desert south of Luxor, and east of Aswan. Definite sightings west of the Nile were at Thebes on several occasions (7 February 1977, 5 and 7 February 1978, also by Lanyon 20 February 1981), and twice on desert walks in broken country west of Abydos (10 November 1977, 9 February 1978).

*Monticola saxatilis***Rock Thrush**

Not known to winter (Meinertzhagen 1930; Hoogstraal *et al.* 1961:200; Etchécopar & Hüe 1967). We have seen a male in the Faiyum 31 January 1977, and three birds were at Karnak 2 November 1978 (J. Bull, *pers. comm.*). Ten to 14 Blue Rock Thrushes *Monticola solitarius* were observed on each winter trip.

*Turdus pilaris***Fieldfare**

Reaches Egypt in some winters, but not previously known from southern Egypt; on 17 February 1976 we saw a half dozen Fieldfares on the river bank within Sohag, and a flock of 12 flew low across the river just behind the boat 7 February 1978 between Dendera and Luxor.

*Turdus philomelos***Song Thrush**

Not reported from southern Egypt by Meinertzhagen (1930), but now known to reach Sudan in small numbers (Cave & Macdonald 1955; Etchécopar & Hüe 1967). About six were seen in the winter of 1976 at the Gizeh Zoo, in the Faiyum, at Sohag, and on Kitchener Island, Aswan (at least two birds); not observed in 1977; seen at Kitchener Island 2 February 1978; and at least four were in the Winter Palace Hotel garden, Luxor, on 2 and 3 March 1979.

*Cisticola juncidis***Fan-tailed Warbler**

Abundant resident, affected by farming practices; fields in which they were display-flying and singing on one winter trip were ploughed up on another, even at about the same time.

Sylviidae

River and reed warblers

All warblers wintering in northern Sudan (Cave & Macdonald 1955) conceivably could winter at least occasionally in Egypt. Also, some northward movement of such species may take place in February, when northern Egypt is yet cool but southern Egypt often is warm or even hot during the day. An apparent River Warbler *Locustella fluviatilis* 3 March 1979 in the Winter Palace Hotel garden, Luxor had faint but definite breast streaks. The species seems not to have been taken in Egypt (Etchécopar & Hüe 1967), but winters in East Africa. The Clamorous Reed Warbler *Acrocephalus stentoreus* was singing in late February and early March commonly in reeds the length of the river from the heart of Cairo to Aswan (we had 10 singing birds between Kom Ombo and Aswan on 5 March 1979). It either winters in or is a resident of southern Egypt. Presumed migrant Reed Warblers *Acrocephalus scirpaceus* have been noted into early November (1977), and at Dendera 19 February 1976, and on Kitchener Island, Aswan, 6 March 1979.

Sylviidae

Warblers, genus *Hippolais*

Olivaceous Warblers *H. pallida* winter in Egypt (Etchécopar & Hüe 1967:492); we have seen a few in Aswan early in February. By early March it becomes common south from Kom Ombo, and singing is heard. Among Olivaceous Warblers in the Cataract Hotel garden, Aswan 6 March 1979 was an Olive-tree Warbler *H. olivetorum*, only a few specimens of which are known from Egypt (Meinertzhagen 1930:212), although it presumably traverses Egypt in migration. Bright yellow-bellied Icterine Warblers *Hippolais icterina* were seen by us at Silsileh 4 November 1977, by J. Bull (*pers. comm.*) in garden acacias at Thebes 4 November 1978, and by us beside the Nile at Kom Ombo 10 February 1977. The species is "decidedly rare" (Meinertzhagen 1930:211) in Egypt and heretofore was unknown in winter.

*Sylvia conspicillata***Spectacled Warbler**

A curious association of this warbler, regularly seen at El Amarna (once at Karnak also), was noted with a Desert Wheatear *Oenanthe deserti* and four Spotted Sandgrouse *Pterocles senegallus* 26 February 1979 at El Amarna. Two of the warblers followed the wheatear about for half an hour, moving with it and immediately flying after it whenever it flew any distance. When the sandgrouse flew in, the wheatear, followed instantly by the warblers, flew toward them and commenced foraging near them.

Sylviidae**Warblers, genus *Sylvia***

We observed apparent migrant Rüppell's Warblers *S. rueppelli* on 5 March 1979 at Kom Ombo (one male) and the next day (about 15) among Lesser Whitethroats *S. curruca* at the same locality; it has been taken in the Delta in February (Meinertzhagen 1930: 223). Two male Orphee Warblers *S. hortensis*, unknown from Egypt in winter, were in a Luxor garden 21 February 1976, and one was at Kom Ombo 10 February 1977. The Lesser Whitethroat *S. curruca*, not known to winter, although suspected of doing so by Meinertzhagen (1930: 220), was seen at: Aswan 24 February 1976; Kom Ombo 10 February 1977; Abu Simbel 11 February 1977; Aswan 2 February 1978; and common from Luxor south in early March 1979, over 200 feeding in flowering trees in Aswan on 6 March (numbers seen in late February 1980 and 1981, as well, *vide* Keith and Lanyon). We observed Whitethroats *S. communis* in Luxor and Aswan in February of 1976 and 1977 (not in 1978, nor 1980, but seen in February 1981, *vide* Lanyon); becomes common in the south the first week of March (at least 20 were in Aswan gardens 6 March 1979). It winters throughout Sudan (Cave & Macdonald 1955) and has not been noted wintering in Egypt, but probably does so in small numbers. The Garden Warbler *S. borin*, common in Sudan in winter (Cave & Macdonald 1955:285) but not known to winter in Egypt, was seen in three of four winters as follows: Aswan 11 February 1977 and 2 February 1978; Kom Ombo 3 February 1978; Luxor 2 March 1979; and Kitchener Island, Aswan, 6 March 1979 (two).

Sylviidae**Leaf Warblers, genus *Phylloscopus***

Bonelli's Warbler *P. bonelli*, wintering in northern but not southern Sudan (Cave & Macdonald 1955), probably reaches Egypt, being seen: at Kitchener Island, Aswan, 24 February 1976; in Luxor 8 February 1977 and Kom Ombo 10 February 1977; and Kom Ombo 5 March 1979, Aswan 6 March 1979, and Gizeh 10 March 1979. Chiffchaffs *P. collybita* far outnumber all other warblers in winter. Willow Warblers *P. trochilus*, not known to winter in Egypt, do so in northern Sudan (Hoogstraal *et al.* 1963:244, map 17), and either sparsely winter in Egypt or begin migration in early February. Records are: 24 February (Aswan) and 26 February 1976 (Cairo, Abusir); possible record, Faiyum, 31 January 1977; 2 February (Aswan) and 3 February 1978 (Kom Ombo); and 2 March (Thebes) and 6 March 1979 (Aswan). It was also seen at Karanis 21 February 1980, Abu Simbel (three) 4 March 1980 (*vide* G. S. Keith), Dendera 17 February 1981 and Kitchener Island, Aswan 24 February 1981 (*vide* W. E. Lanyon).

Muscicapa striata**Spotted Flycatcher**

A bird was seen for a quarter of an hour flycatching from a tree at the Gizeh Zoo 12 February 1976. It normally winters north to Sudan (Cave & Macdonald 1955).

Anthreptes metallicus**Nile Valley Sunbird**

Sparse resident about gardens throughout the Nile Valley, perhaps more common than in Meinertzhagen's (1930:172) time. Seen on every trip at these localities: Gizeh Zoo and elsewhere in Gizeh (thrice); Karanis (once); Memphis (once); El Amarna-El Till (thrice); Luxor (twice); El Kab (twice); Kom Ombo (twice); and Aswan (five times). As many as 10 were noted on Kitchener Island, Aswan, and others of the above records involve up to five or so individuals. Full male breeding plumage has not been seen before 23 February.

Lanius collurio**Red-backed Shrike**

Uncommon to rare in Egypt (Meinertzhagen 1930:183-184); Hoogstraal *et al.* 1963:248). One was on Kitchener Island, Aswan 11 February 1977. In 1979 we saw it at El Fashn 24 February, beside the river near Mallawi 25 February, and near Kom Ombo 5 March. These are rather early for spring migrants although the 1979 birds could represent early migrants.

Lanius minor**Lesser Grey Shrike**

One definite record 28 February 1979 near El Balyana, probably an early migrant, although the species is rare in spring migration (Meinertzhagen 1930:177).

*Lanius excubitor***Great Grey Shrike**

Meinertzhagen (1930:178) indicated its distribution as including the fringes of the Delta and the Faiyum, whereas Etchécopar and Hùe (1967:549) show it throughout Egypt. It is regularly seen only in the Lower and Middle Nile north from Sohag; only twice seen south of Sohag, at Dendera and Luxor.

*Lanius nubicus***Masked Shrike**

Sometimes winters in southern Egypt, and seen in Cairo as early as 12 March (Hoogstraal *et al.* 1961: 202). We have found this shrike: 23 February 1976 at Kom Ombo; 24 February 1976 in Aswan (Lanyon had three here 24 February 1981); 8 February 1978 at Dendera; 26 February 1979 at El Till, our north-most point; 27 February 1979 near Sohag; and 1-7 March 1979, some 20 individuals, apparently migrants, between Dendera and Aswan.

*Corvus corone***Hooded Crow**

Abundant throughout the Nile Valley and common at Aswan, but never seen at Abu Simbel or along Lake Nasser.

*Corvus ruficollis***Brown-necked Raven**

Widespread in small numbers about desert cliffs, ruins, and the edges of cultivation beside the Nile wherever the river approaches the desert. Incubation, marked by changeovers, was noted at a nest in the Amun Temple, Karnak, on 1 March 1979; the ravens are regularly found about this hall.

*Sturnus vulgaris***Starling**

Seen only about Cairo and environs, and fewer than a dozen in each trip; most frequently seen at the Gizeh Zoo. It appears to be less numerous now (Hoogstraal *et al.* 1963: 250 & map 24) than in Meinertzhagen's (1930: 99) time.

*Passer spp.***Sparrows**

Abundant House Sparrows *Passer domesticus* have taken over many old, no longer flood-endangered Sand Martin holes in the Nile banks. Wintering Spanish Sparrows *P. hispaniolensis*) were noted sporadically in flocks about cultivation as far south as Edfu.

*Estrilda astrild***Common Waxbill**

Although the Red Avadavat *Amandava amandava* is the species that was introduced into Egypt, and is still found about Cairo, it was this Waxbill that we saw behind the El Dar Restaurant, between Saqqara and Memphis on 13 February 1976. We observed at close range 15 males and females feeding for ten minutes on a lawn; they then flew away in a tight-flying group. Whether this represents a local escape is uncertain.

*Fringilla coelebs***Chaffinch**

Meinertzhagen (1930:117) and Hoogstraal *et al.* (1963:250) noted this species as common in winter, and it may be so in the Delta, but we have seen only one, at Kitchener Island, Aswan 24 February 1976.

*Serinus serinus***Serin**

Found in winter only in the Delta according to Meinertzhagen (1930: 111), and seen by us only once, at Gizeh (Keith, *pers. comm.* reported one near Lake Qarun 21 February 1980).

*Serinus syriacus***Syrian Serin**

On 25 February 1979 at Tuna El Gebel, where there is a garden oasis, we found a singing male and a apparent female. The male was greyish and weakly marked dorsally, and showed no trace of ventral streaking; its face was greyish with prominent yellow lores, yellow forehead and yellow around the eyes. The female was weakly streaked on its sides. The male perched

some seven metres from us, and faced about several times over 15 minutes; the female perched nearby. At one point a Goldfinch *Carduelis carduelis* landed on the same branch as the male, which attacked the Goldfinch; the two disappeared in a chase, but the serin returned a moment later and resumed singing its loud song, which seemed less 'twittery' and variable in tone than the voice of Serins we have heard. This is the second report of the species from Egypt (and Africa), Nicoll having taken one near Helwan in December 1919 (Meinertzhagen 1930: 112). The presence of a pair of Syrian Serins suggests that they might attempt breeding. (Hubbard & Seymour (1968: 576) took a Red-fronted Serin *S. pusillus* at Bahig, west of Alexandria.)

Carduelis chloris

Greenfinch

Hoogstraal *et al.* (1963: 250) indicated that it winters "occasionally in the Nile Delta". We have seen at least one bird in each of four winters, at Gizeh (both at the zoo and elsewhere), near Saqqara, and at Auberge el Faiyum on Lake Qarun 14 February 1976.

Carduelis carduelis

Goldfinch

Stated (Etchécopar & Hüe 1967: 566) to be a resident about Cairo but not elsewhere in Egypt; other than in Cairo we have seen it in numbers in the Faiyum (twice), at Tuna el Gebel (twice), in Memphis, at El Ashmunein, in Luxor, and at Aswan (thrice, 20 on 7 March 1979). Singing in late February and early March, and likely breeding locally throughout the Nile Valley.

Bucanetes githagineus

Trumpeter Finch

In addition to localities cited by Meinertzhagen (1930: 113) we have found them at Meidum, El Till, and El Kab; they readily come to water sources about dwellings at the fringe of the desert.

Emberiza hortulana

Ortolan Bunting

A common spring migrant (Meinertzhagen 1930: 125-126); one near the Kom Ombo temple 23 February 1976 was possibly an early migrant.

Miliaria calandra

Corn Bunting

Seen infrequently away from the Delta (Meinertzhagen 1930); noted in the Faiyum 14 February 1976 and 22 February 1979, near Beni Suef 24 February 1979, and possibly at El Till 26 February 1979.

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EGYPTIAN WETLANDS AS THREATENED WINTERING AREAS FOR WATERBIRDS

by

Peter L. Meininger and Wim C. Mullié

INTRODUCTION

Compared to the temperate and colder areas to the north, the Mediterranean region is lacking in wetlands. This is due to the relatively sparse and intermittent precipitation and to the geomorphology—many mountains, narrow plains, few extensive deltas and a small tidal range (UNESCO 1979). For many centuries the area of wetlands has been diminished by reclamation. At present the remaining areas are seriously threatened by further agriculture, aquaculture, urban and industrial growth and tourism, each of them competing for space and bringing danger of increased pollution (UNESCO 1979), disturbance and even total destruction of the ecosystem.

About one million hectares of natural or semi-natural wetlands still remain in the Mediterranean region (UNESCO 1979), of which at least 280,000 hectares of coastal wetlands are in lower Egypt and Sinai (Meininger & Mullié 1981). This means that over 25 per cent of all Mediterranean wetlands are situated along the Mediterranean coast of Egypt, which is a clear indication of Egypt's (and the World's!) responsibility for the conservation of these wetlands. The geographical position of the Nile Delta, situated as it is on one of the World's main bird migration routes is the main reason that the Egyptian wetlands are of major importance as a staging area for birds on migration to and from wintering grounds further south. Furthermore the Nile Delta is a wintering area for migratory birds from nearly the entire Palearctic region. Up-to-date information about the numbers of birds migrating or wintering has been almost completely lacking for all of Egypt.

An inquiry into the wintering of Palearctic waterbirds in the Nile Delta was made by F. O'Gorman and M. Smart in January 1976. They did not, however, succeed in locating large numbers of waterbirds. This was mainly due to lack of time and facilities for visiting all sites of possible interest (M. Smart *in litt.*).

Along the Mediterranean coast of the Nile Delta are four coastal lakes. In recent years information was obtained on plans for (partial) reclamation and industrialisation of these lakes.

To learn more about the lakes and surrounding areas, a plan was made to visit Egypt. An added purpose was to obtain more detailed information on the importance on the Egyptian wetlands, particularly the coastal lakes, for wintering and migratory birds.

The geographical position of the main Egyptian wetlands are given in *Figure 1*. The routes we took to visit these areas is also indicated.

METHODS

From 1 January to 12 February 1979 the 'Netherlands Ornithological Expedition to Egypt' visited many Egyptian wetlands. Members of this expedition were Jan van der Kamp, Wim Mullié, Peter Meininger and Bernard Spaans. In this period additional observations were made by Jan Visser in the Nile Delta and the Nile Valley and by Ben Dielissen along the Sinai coast of the Gulf of Aqaba.

From 20 December 1979 to 27 January 1980 the 'Second Netherlands Ornithological Expedition to Egypt' continued the work of the previous winter. Members of the second expedition were Peter Meininger and Wim Mullié, who were accompanied on several trips by Sherif M. Baha el Din, an excellent Egyptian birdwatcher. Additional observations were made by Dr. Paul Isenmann at Lake Maryut, Lake Idku and Lake Manzala and by Ben Dielissen along the Sinai coast of the Gulf of Aqaba.

The area, a rough estimation of the coverage and the means of transport during the surveys are given in TABLE 1. Detailed information on these areas is given in the report of the expeditions (Meininger & Mullié 1981).

Other results of the expeditions are published elsewhere (Meininger *et al.* 1979; Meininger & Mullié 1979a and b; Mullié & Meininger 1981).

In this paper the results of both expeditions are being discussed, with the emphasis on the significance of the Egyptian wetlands for wintering waterbirds and the threats to those wetlands.

The results of the expeditions were a contribution to the mid-winter counts of the International Waterfowl Research Bureau (IWRB) and to the knowledge of the birds of Egypt, ornithologically one of the least known areas in the Western Palearctic (e.g. Cramp & Simmons 1977 and 1980).

We emphasise that the numbers of birds mentioned in this paper should be considered as minima as they are the numbers counted. The numbers actually present may well have been multiples of these.

TABLE I. INFORMATION ON THE MOST IMPORTANT AREAS VISITED

	Area (km ²)	Estimated coverage (%)		Means of transport
		1978/79	1979/80	
Lake Maryut	< 60	< 25	< 25	Foot, car
Lake Idku	126	< 25	< 25	Foot, car, sailing boat
Lake Burullus	426	60	60	Foot, sailing boat
Lake Manzala	1,400	30	50	Foot, car, canoe, ferry, airboat
Wadi Natrun	?	> 75	—	Foot, car
Lake Qarun	202	> 75	> 75	Foot, motor boat
Wadi Ruwayan	147	—	< 10	Foot
Bitter Lakes and Lake Timsah	?	?	?	Foot, car
El Malaha, Bur Fuad	?	—	50	Foot, canoe
Lake Bardawil	?	—	< 10	Foot, car, motor boat
Gulf of Suez	?	?	?	Foot, bus
Red Sea coast, Sinai	?	?	?	Foot, bus
Red Sea coast, Za'farana-Safaga	?	—	?	Foot, bus
Nile Valley	?	?	?	Foot, train, sailing boat
Lake Nasser	6,200	—	< 10	Motor boat

THE BIRD COUNTS

TABLE II shows, by area, the maximum counts of grebes (Podicipedidae), Cory's Shearwater *Calonectris diomedea*, Cormorant *Phalacrocorax carbo*, pelicans (Pelecanidae), herons (Ardeidae), Black Stork *Ciconia nigra*, Spoonbill *Platalea leucorodia* and Greater Flamingo *Phoenicopterus ruber*.

Podiceps cristatus

Great Crested Grebe

From 10-12 January 1979 we counted 2,800 and on 1 and 2 January 1980 3,400 on Lake Qarun. Small numbers were present on Lake Maryut, Lake Burullus, Lake Manzala, the Bitter Lakes, El Malaha and Lake Bardawil. Meinertzhagen (1930) mentions this species as a rare resident in Egypt, occurring in small numbers on Lake Qarun and the Delta lakes. Nowadays it probably does not breed any more on Lake Qarun, as the salinity of this lake increased during the last decades (Meshal, 1977) and there is hardly any shore vegetation left.

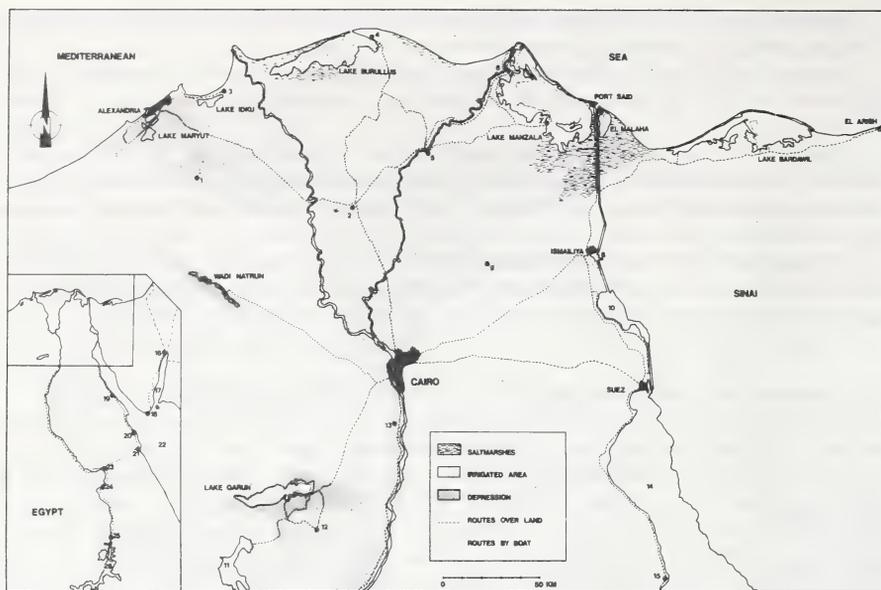


Figure 1. The main Egyptian wetlands and key to localities mentioned in the text.

- | | | |
|--------------------------------|------------------------------|-----------------|
| Key: 1. Abu el Matâmir | 10. Bitter Lakes | 19. Râs Ghârib |
| 2. Tanta | 11. Wâdi el Ruwayân | 20. Hurghada |
| 3. Idku | 12. El Faiyûm | 21. Bur Safâga |
| 4. Baltim | 13. Dashûr (hunting reserve) | 22. Red Sea |
| 5. El Mansura | 14. Gulf of Suez | 23. Qena |
| 6. Dumyât | 15. Za'farâna | 24. Luxor |
| 7. El Matariya | 16. Eilat | 25. Aswan |
| 8. Lake Timsâh | 17. Gulf of 'Aqaba | 26. Lake Nasser |
| 9. El Abbâsa (hunting reserve) | 18. Râs Muhammed | |

Podiceps nigricollis

Black-necked Grebe

This species was particularly abundant on the saline lakes. From 10-12 January 1979 we counted 10,800 and on 1 and 2 January 1980 10,300 on Lake Qarun. Also notable were the records of 280 birds on Lake Bardawil on 7 January 1980, 1,330 birds on El Malaha on 9 January 1980 and 450 birds on the Bitter Lakes on 18 January 1980.

Meinertzhagen (1930) mentions the Black-necked Grebe as an uncommon winter visitor to Egypt. However, this statement seems doubtful as Nicoll (1908) saw "a great many" on Lake Manzala in January 1908 and as Ticehurst (1931) found it exceedingly common on Lake Manzala in January and February 1920.

In the Western Palearctic region concentrations such as we observed on Lake Qarun are only known from Turkey, where 18,600 were counted on Lake Burdur in December 1970 (Koning & Dijkse, 1970).

Calonectris diomedea

Cory's Shearwater

On 26 December 1979 one was seen flying over the coastal sand bar between Port Said and Dumyat and on 6 January 1980 one was seen off El Arish.

Phalacrocorax carbo

Cormorant

The highest number was seen on El Malaha: 2,200 on 10 January 1980. These birds were regularly seen flying to and from Lake Manzala.

Pelecanus onocrotalus

White Pelican

A juvenile specimen was shot on the Nile near Aswan on 15 January 1979 (Z. Gelada, *pers. comm.*). On 26 December 1979 four live birds were seen in the market at Dumyat.

Meinertzhagen (1930) mentions the White Pelican as common on the larger sheets of water in Egypt from autumn to spring, especially in the Faiyum, in the Suez Canal area and on the Nile sandbanks south to Wadi Halfa. Our records do not confirm the statement of G. E. Watson (in Cramp & Simmons, 1977) that "substantial numbers winter in Egypt in Delta, Faiyum, Suez Canal and Red Sea" and it seems most unlikely that the species still winters in any considerable numbers in the areas we visited.

Pelecanus crispus

Dalmatian Pelican

The only record is that of seven birds on El Malaha on 10 January 1980. Meinertzhagen (1930) says that this species occurs in large flocks in the Faiyum from autumn to spring and can be often seen on the Nile and in the Suez Canal area. There has been a strong decrease in numbers breeding in Europe and western Asia during this century (Cramp & Simmons, 1977).

Egretta alba

Great White Egret

On 19 and 20 January one was seen near Luxor (J. Visser, *pers. comm.*). On 31 January 1979 87 and on 26 December 1979 74 were counted in the saltmarshes along the north western shore of Lake Manzala. On 1 February 1979 three were seen at El Burg, Lake Burullus and on 11 January 1980 35 in Lake Idku (P. Isenmann, *in litt.*). In March 1979 E. Muller (*in litt.*) observed 15 Great White Egrets in El Malaha.

The distribution of this species in Egypt seems to be restricted to areas with saline conditions.

Ciconia nigra

Black Stork

On 20 January 1979 one was seen near Aswan. According to Cramp and Simmons (1977) Egypt is not included in the normal winter range of this species.

TABLE II. MAXIMUM COUNTS OF GREBES, CORY'S SHEARWATER, CORMORANT, PELICANS, HERONS, BLACK STORK, SPOONBILL AND GREATER FLAMINGO. (FIGURES IN ITALICS CONCERN 1978/79, OTHER FIGURES 1979/80)

Species	TOTAL 1978/79	TOTAL 1979/80	Lake Maryut	Lake Idku	Lake Burullus	Lake Manzala	Other areas Nile Delta	Wadi Natrun	Lake Qarun	Wadi Ruwayan	Bitter Lakes	El Malaha, Bur Fua	Lake Bardawil	Gulf of Suez	Red Sea Coast	Nile Valley	Lake Nasser
Little Grebe <i>Tachybaptus niglicollis</i>	16	4	-	5	2	5	-	4	2	-	2	-	-	-	-	-	-
Great Crested Grebe <i>Podiceps cristatus</i>	2,900	3,800	2	1	20	56	-	3,400	4	-	5	240	21	-	-	-	-
Black-necked Grebe <i>Podiceps nigricollis</i>	10,800	12,500	160	1	17	16	-	10,800	65	2	450	1,300	280	-	-	-	-
Cory's Shearwater <i>Calonectris diomedea</i>	280	2,500	2	-	-	290	6	-	1	-	1	2,200	1	3	-	-	2
Cormorant <i>Phalacrocorax carbo</i>	1	4	-	-	-	4	-	-	-	-	-	-	-	-	-	7	-
White Pelican <i>Pelecanus onocrotalus</i>	-	7	-	-	-	-	-	-	-	-	-	7	-	-	-	-	-
Dalmatian Pelican <i>Pelecanus crispus</i>	19	24	1	7	4	19	-	7	-	-	-	-	-	-	-	-	-
Little Bittern <i>Ixobrychus minutus</i>	-	4	-	-	-	1	-	-	-	-	-	-	-	-	3	-	-
Night Heron <i>Nycticorax nycticorax</i>	-	4	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Green Heron <i>Butorides striatus</i>	8	35	-	16	-	16	2,900	3	1,700	-	210	-	-	5	2	15,800	21
Squacco Heron <i>Ardeola ralloides</i>	16,100	15,800	-	-	-	2	-	-	-	-	-	-	-	6	2	15,800	160
Cattle Egret <i>Bubulcus ibis</i>	1	6	-	-	-	140	-	-	47	-	-	73	-	-	88	1	-
Western Reef Heron <i>Egretta gularis</i>	190	840	37	370	370	87	-	-	-	-	-	-	-	-	-	-	-
Little Egret <i>Egretta garzetta</i>	91	610	35	3	2	750	-	-	25	3	-	70	3	-	66	1	55
Great White Egret <i>Egretta alba</i>	250	980	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-
Grey Heron <i>Ardea cinerea</i>	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Black Stork <i>Ciconia nigra</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spoonbill <i>Platalea leucorodia</i>	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Greater Flamingo <i>Phoenicopterus ruber</i>	-	7,200	15	-	-	10	-	-	2	-	-	6,400	790	-	-	-	-

*Platalea leucorodia***Spoonbill**

The only Spoonbill was seen on 20 January 1979, resting on a sandbank in the Nile near Aswan.

*Phoenicopterus ruber***Greater Flamingo**

Only recorded in winter 1979/80, the largest counts being 6,400 on El Malaha and 790 on Lake Bardawil. A colony of 500-600 pairs was (re-)discovered in north west Sinai in 1970 (Cramp & Simmons, 1977). The species has probably been breeding in El Malaha since.

TABLE III shows the counts of geese and ducks (Anatidae) and rails (Rallidae).

*Anser sp.***Geese**

The 70 unidentified geese flying south near Port Said were probably Grey Lag Geese *Anser anser*. According to Meinertzhagen (1930) the White-fronted Goose *Anser albifrons* is the most common wintering goose in Egypt and the Grey Lag Goose has not been recorded in Egypt. Mr. Victor Massad, a hunter who has visited the Delta lakes every year since 1947, told us that he had never seen geese in Egypt. O'Gorman and Smart (1976) saw a few White-fronted Geese in January 1976.

*Alopochen aegyptiacus***Egyptian Goose**

Only observed south of Sohag. Between Sohag and Aswan all birds were resting on sandbanks in the Nile except one flock of 364 feeding on arable land (probably Lucerne *Medicago sativa*) between Sohag and Qena on 18 January 1979. In April 1978 this species was absent from the Nile Valley between Luxor and Aswan (Meininger & Dielissen 1979) so the birds were observed in this area had possibly dispersed northwards from Lake Nasser outside the breeding season. Nowadays Lake Nasser is probably the only area in Egypt where the Egyptian Goose commonly breeds.

In 1974 the numbers of Egyptian Goose on Lake Nasser were estimated at 5-10 specimens per kilometre shoreline (Entz 1980), which makes this area one of the more important areas for the Egyptian Goose in Africa.

*Anas penelope***Wigeon**

Large numbers were seen on Lake Burullus (23,400 on 1 February 1979 and 35,600 on 14-16 January 1980).

*Anas clypeata***Shoveler**

The numbers seen on Lake Burullus (63,500 on 1 February 1979 and 53,000 on 14-16 January 1980) indicate the major importance of this lake as a wintering area for this species in the eastern Mediterranean area. Atkinson-Willes (1976) mentions as the maximum number of Shoveler ever counted in one area as 23,000 in January in the Menderes Delta (Turkey).

TABLE IV shows the counts of waders.

*Recurvirostra avosetta***Avocet**

The most notable numbers were seen on Lake Manzala (1,800 on 25-29 December 1979) and on El Malaha (930 on 8 and 9 January 1980). In January 1972 15,000 Avocet were seen on El Malaha (Y. Paran *in litt.*).

TABLE III. MAXIMUM COUNTS OF GEESE, DUCKS AND RAILS

Species	TOTAL 1978/79	TOTAL 1979/80	Lake Maryut	Lake Idku	Lake Burullus	Lake Manzala	Other areas Nile Delta	Wadi Natrun	Lake Qarun	Wadi Ruwayan	Bitter Lakes	El Malaha, Bur Fuad	Lake Bardawil	Gulf of Suez	Red Sea Coast	Nile Valley	Lake Nasser
Unidentified grey goose <i>Anser sp.</i>	70	220	-	-	-	70	-	-	-	-	-	-	-	-	-	-	-
Egyptian Goose <i>Alopochen aegyptiacus</i>	660	870	-	-	-	-	-	130	16	-	-	800	-	-	-	660	-
Shelduck <i>Tadorna tadorna</i>	1,200	870	18	9	35,600	1,000	-	130	1,800	-	-	20	4	-	340	-	
Wigeon <i>Anas penelope</i>	25,500	35,900	2	6	230	49	-	220	15	-	-	4	-	-	34	-	
Gadwall <i>Anas strepera</i>	240	49	20	65	620	4,700	12	220	1,000	1	-	4	4	75	34	20	
Teal <i>Anas crecca</i>	2,300	5,500	70	280	410	5	2	10	110	2	34	160	3	30	1	5	
Mallard <i>Anas platyrhynchos</i>	420	280	94	5	280	40	2	10	2	43	34	180	-	-	1	180	
Pintail <i>Anas acuta</i>	670	600	5	60	63,500	8,800	6	2	11,700	15	-	1,800	-	-	19	4	
Shoveler <i>Anas clypeata</i>	64,800	75,500	91	60	63,500	8,800	6	2	11,700	15	-	1,800	-	-	19	4	
Marbled Teal <i>Marmaronetta angustirostris</i>	1	45	32	6	70	1	-	-	-	-	-	-	-	-	-	-	
Red-crested Pochard <i>Nettion rufina</i>	71	45	32	6	70	1	-	-	-	-	-	-	-	-	-	-	
Pochard <i>Aythya ferina</i>	8,700	9,900	420	5	8,300	1,300	-	-	320	20	-	-	-	-	-	-	
Ferruginous Duck <i>Aythya nyroca</i>	6,800	1,000	48	5	6,600	3	-	-	5	-	-	-	-	-	-	180	
Mottled Duck <i>Aythya fuligula</i>	5,300	6,500	110	1	23	49	-	-	5,700	680	-	-	-	-	-	1	
Water Rail <i>Rallus aquaticus</i>	57	21	1	9	5	32	-	15	1	-	2	-	-	-	-	-	
Spoonten Crane <i>Porzana porzana</i>	420	330	2	60	22	260	14	22	-	-	1	-	-	-	-	72	
Booted Gallinule <i>Gallinula chloropus</i>	15	16	4	4	5	101	-	-	-	-	1	-	-	-	-	1	
Purple Gallinule <i>Porphyrio porphyrio</i>	185,000	172,000	260	15	154,000	51,300	-	-	18,800	330	57	4	7	2	-	83	
Coot <i>Fulica atra</i>	-	-	-	4	5	-	-	-	-	-	-	-	-	-	-	-	61

*Charadrius alexandrinus***Kentish Plover**

In the Western Palearctic region concentrations such as we observed on Lake Manzala (6,500 on 25-29 December 1979) are only known from the Banc d'Arguin in Mauretania, with over 17,000 birds counted in winter 1979/80 (Piersma *et al.* 1980).

*Gallinago media***Great Snipe**

On 8 January 1979 one was seen along the shore of Lake Timsah and on 17 January 1979 three in the Wadi Natrun. According to Meinertzhagen (1930) the Great Snipe is a rare passage migrant and unknown in winter.

*Phalaropus fulicarius***Grey Phalarope**

On 10 January 1980 four were seen and photographed on El Malaha. The species had not previously been recorded in Egypt.

TABLE V shows the counts of skuas (Stercorariidae), gulls (Laridae) and terns (Sternidae).

*Stercorarius pomarinus***Pomarine Skua**

On 6 January 1980 three, and on 7 January 1980 a single bird, were seen flying west over Lake Bardawil. All were immatures.

Meinertzhagen (1930) mentions only one record: 11 April 1922 one at Ashrafi Lighthouse in the Gulf of Suez. On 25 March 1945 four birds were seen off the north coast of Egypt (Elliot 1952) and on 1 July 1977 six birds were present in the harbour of Alexandria (Meininger & Dielissen 1979). On 13 October 1980 one immature was seen off Port Said by Peter Meininger and Sherif Baha el Din.

The species is frequently noted migrating to the north near Eilat (Israel) in spring, with 45 records from 1966-1979, and a maximum of 39 birds per day (Krabbe 1979).

*Stercorarius parasiticus***Arctic Skua**

On 9 January 1980 one was seen flying west at El Malaha, Bur Fuad.

Meinertzhagen (1930) does not mention this species as occurring in Egypt. In September 1941 one was shot near Port Said (El Nagoumi Pasha *et al.* 1950). In the autumns of 1973 and 1978, 62 and 66 respectively were noted passing along the north coast of Sinai by various ornithologists (Y. Paran *in litt.*). On 13 October 1980 34 birds were seen in two hours off Port Said by Peter Meininger and Sherif Baha el Din.

Near Eilat (Israel) the Arctic Skua was recorded in the springs of 1966-1979 on 83 days, with a maximum of 48 birds per day (Krabbe 1979).

*Larus genei***Slender-billed Gull**

This species appeared to be common on all saline lakes. The largest numbers were seen on Lake Manzala (640 in early January 1980), Lake Qarun (1,240 on 10 January 1979) and El Malaha (5,300 on 9 January 1980). A large percentage of the unidentified small gulls *Larus ridibundus/genei* may well have been also Slender-billed Gulls.

Our records are strikingly different from Meinertzhagen's (1930) statement that this species is "decidedly rare in Egypt". Apparently the species is numerous throughout the year. During July and August 1979, the most numerous aquatic birds on Lake Manzala were Slender-billed Gulls, with perhaps as many as 2,000 present on the entire lake (Dr. E. Muller *in litt.*).

Formerly, it was not generally known that this species bred in Egypt, although El Nagoumi Pasha *et al.* (1950) mention a colony on the Dib Island near Port Said, but the exact locality

TABLE IV. MAXIMUM COUNTS OF WADERS

Species	TOTAL 1978/79	TOTAL 1979/80	Lake Maryut	Lake Idku	Lake Burullus	Lake Manzala	Other areas Nile Delta	Wadi Natrun	Lake Qarun	Wadi Ruwayan	Bitter Lakes	El Malaha, Bur Fuad	Lake Bardawil	Gulf of Suez	Red Sea Coast	Nile Valley	Lake Nasser
Painted Snipe <i>Rostratula benghalensis</i>	84	2	-	-	-	2	7	-	2	-	-	-	-	10	5	-	-
Oystercatcher <i>Haematopus ostragrus</i>	110	1	-	-	-	110	-	-	-	-	-	-	-	2	1	-	-
Black-winged Stilt <i>Himantopus himantopus</i>	85	2,800	15	15	25	1,800	-	12	7	4	930	-	1	1	-	-	-
Avocet <i>Recurvirostra avocetta</i>	1	4	-	-	-	-	2	-	-	-	-	-	-	-	-	7	-
Stone-curlew <i>Burhinus oedipnemus</i>	2	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Senegal Thick-knee <i>Burhinus senegalensis</i>	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cream-coloured Plover <i>Chloropus chloropus</i>	4	7	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Little Ringed Plover <i>Charadrius hiaticula</i>	450	1,200	280	280	200	720	6	6	16	6	22	22	140	3	1	1	8
Kinglet <i>Alcedo atthis</i>	30	15	3	3	3	71	19	19	200	17	12	290	34	60	2	1	1
Kinglet's Sand Plover <i>Charadrius pecuarius</i>	460	7,600	140	140	590	6,500	6	120	200	17	30	47	19	55	26	-	-
Kamish Plover <i>Charadrius alexandrinus</i>	110	200	27	27	33	37	15	3	13	3	30	47	1	19	2	-	-
Golden Sand Plover <i>Charadrius leschenaultii</i>	115	120	1	1	28	15	120	3	13	46	6	48	1	230	7	-	-
Golden Plover <i>Pluvialis apricaria</i>	150	410	1	1	7	29	34	4	46	4	11	340	4	32	-	2	260
Grey Plover <i>Pluvialis squatarola</i>	380	450	2	2	75	280	1,100	49	420	2	2	340	4	15	-	2	310
Spur-winged Plover <i>Hoplopterus spinosus</i>	2,000	1,100	2	2	760	660	75	1,300	1,600	28	10	29	20	5,000	-	22	24
Lapwing <i>Vanellus vanellus</i>	2	1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sanderling <i>Callidris alba</i>	10,200	11,800	51	1,600	760	6,200	75	1,300	1,600	28	10	29	20	5,000	-	22	24
Little Stint <i>Callidris minuta</i>	14	1	-	-	-	6	-	5	3	-	-	-	-	1	-	-	-
Terminck's Stint <i>Callidris terminckii</i>	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Curlew Sandpiper <i>Callidris ferruginea</i>	15	7,600	23	23	650	4,700	-	5	3	-	7	160	15	2	-	-	38
Dunlin <i>Callidris alpina</i>	40	4,900	470	470	470	3,800	-	40	40	2	7	2,000	15	2	20	-	-
Unidentified small wader <i>Callidris</i> (<i>Charadrius</i> sp.)	380	10	2	2	240	140	-	18	26	-	3	600	56	-	5	-	-
Ruff <i>Philomachus pugnax</i>	68	160	7	7	18	49	4	18	2	-	3	-	7	-	-	-	-
Snipe <i>Gallinago gallinago</i>	4	-	2	2	18	49	4	3	2	-	7	-	7	-	-	-	-
Great Snipe <i>Gallinago media</i>	23	-	-	-	-	22	-	3	-	-	7	-	7	-	-	-	-
Black-tailed Godwit <i>Limosa limosa</i>	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Whimbrel <i>Numenius arquata</i>	140	15	-	-	-	17	1	62	8	-	-	3	-	45	1	-	-
Curlew <i>Numenius arquata</i>	170	13	30	30	7	5	19	110	140	-	9	180	-	400	2	1	1
Spotted Redshank <i>Tringa erythropus</i>	2,900	4,000	500	500	520	3,400	19	110	160	-	9	180	-	400	2	1	1
Redshank <i>Tringa totanus</i>	110	260	8	8	4	14	-	-	2	-	3	92	-	4	4	-	-
Marsh Sandpiper <i>Tringa stagnatilis</i>	84	47	4	4	2	12	8	6	9	-	2	4	-	4	4	-	-
Green Sandpiper <i>Tringa nebularia</i>	88	53	16	16	4	16	8	6	9	1	6	4	-	5	36	1	1
Wood Sandpiper <i>Tringa glareola</i>	55	76	14	14	6	16	5	5	10	1	7	12	-	1	33	1	1
Common Sandpiper <i>Actitis hypoleucos</i>	55	54	1	1	1	14	3	-	5	-	6	12	-	2	49	-	-
Turnstone <i>Arenaria interpres</i>	4	52	7	7	1	34	-	-	-	-	7	4	-	2	5	-	-
Grey Phalarope <i>Phalaropus fulicarius</i>	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

of this island is unknown. However, in summer 1979, 200-400 nests were found on two small, sandy islands in El Malaha (T. Day *pers. comm.*). Unfortunately all eggs were collected by fishermen, although two eggs were kept. These were measured and photographed by the authors (measurements: 55.4 × 39.0 mm, and 57.3 × 39.7 mm.).

Chlidonias hybridus

Whiskered Tern

On 31 January 1979 we counted 17,380 in the south eastern part of Lake Burullus. On this day there was no wind and they were feeding in large flocks on the millions of Chironomids *Chironomus sp.* above the water surface. The following day was windy, there were no midges and we saw only two Whiskered Terns. From 6-8 February 1979 we counted a total of 7,080 on Lake Manzala, particularly in the marshes between Dumyat and El Matariya, where the birds were resting due to the windy conditions, and could only be observed when disturbed by fishermen. On 28 December 1979 6,100 Whiskered Terns were seen on Lake Manzala in the environs of El Matariya and on 29 December 1,310 birds were present in the marshes in the middle of this lake. From 14-16 February 1980 we saw 17,500 Whiskered Terns on Lake Burullus. The majority was seen in the evening of 14 February, when the terns were flocking to their night-roost in the marshes along the southern shore.

The total numbers counted in Egypt in the winters 1978/79 and 1979/80 were 24,500 and 25,000 respectively. Considering the completeness of our surveys, the total number of Whiskered Terns wintering on the lakes Burullus and Manzala may well be between 30,000 and 50,000.

Meinertzhagen (1930) mentions the Whiskered Tern as not common on autumn passage (late August-early October) but common on spring passage (April and May). The first mention of a Whiskered Tern in Egypt in winter is from Al Hussaini (1959), who says that this species has been collected in Farafra-oasis in late January. On 2 January 1976 two Whiskered Terns were seen on Lake Qarun (M. Smart *in litt.*).

The wintering of Whiskered Terns around the Mediterranean is probably a rather recent phenomenon. In the 1970s small numbers were seen in winter in several localities in Europe: on the Albufera de Valencia and in the Ebro Delta (Spain), in the Camargue (France) (Mees 1979), and on the Black Sea coast of Rumania (Lebret & Ouweneel 1974). In Turkey the species is regularly recorded in winter in fairly small numbers on the Central Plateau and in the south (O.S.T. 1975). In January 1979 small numbers of Whiskered Terns were discovered in several areas in Iraq, the largest number being 458 birds in Haur Al-Hammar and adjacent areas (Carp & Scott 1979). On 24 December 1979 23 birds were seen near Bet She'an, Israel (B. C. Dielissen *in litt.*).

In north west Africa Whiskered Terns have been recorded in winter in Morocco, Algeria and Tunisia. Smith (1965) recorded birds seen in Morocco in November 1963 and January 1964. In Algeria winter records have been known since 1972, and the species might winter regularly in small numbers (Jacob 1979). In Tunisia Whiskered Terns were seen in the winters 1963-1978 on Lac de Tunis in numbers between 20 and 70. Smaller numbers were seen in the years 1975-1978 on Gereat Ichkeul, Oued Sed, salines de Safex-Thyna, Sebkhah Séjourni and Sebkhah Kelbia, with an exceptional high number of 100 birds on the latter on 2 February 1977 (Mees 1979).

A recent estimate of the breeding population of the species in Europe is of 18,000 pairs (Mees 1979). The Nile Delta is probably one of the most important (if not *the* most important) wintering areas of the breeding populations of the Whiskered Tern of Europe and western Asia.

Chlidonias niger

Black Tern

On 31 January 1979 we identified at least four Black Terns among the Whiskered Terns on Lake Burullus, all in almost complete summer plumage. On 22 and 23 January 1980 we saw a total of 118 Black Terns flying north on Lake Nasser.

Meinertzhagen (1930) mentions the latest date in autumn for this species in Egypt as 10 November. The species is a fairly common winter visitor to the Sudan (Cave & Macdonald 1955). On 9 January 1980 an adult in summer plumage was seen on Halk el Menzel, Tunisia (Blankert 1980).

TABLE V. MAXIMUM COUNTS OF SKUAS, GULLS AND TERNS

Species	TOTAL 1978/79	TOTAL 1979/80	Lake Maryut	Lake Idku	Lake Burullus	Lake Manzala	Other areas Nile Delta	Wadi Natrun	Lake Qarnun	Wadi Ruwayan	Bitter Lakes	El Malaha, Bur Fuad	Lake Bardawil	Gulf of Suez	Red Sea Coast	Nile Valley	Lake Nasser
Pomarine Skua <i>Stercorarius pomarinus</i>	-	4	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-
Arctic Skua <i>Stercorarius parasiticus</i>	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Sooty Gull <i>Larus hemprichii</i>	16	1	-	-	-	-	-	-	-	-	16	1	-	16	1	-	-
White-eyed Gull <i>Larus leucophthalmus</i>	47	47	-	-	-	-	-	-	-	-	18	29	-	18	29	-	-
Mediterranean Gull <i>Larus melanocephalus</i>	29	250	-	-	-	230	22	7	7	-	1	3	-	7	-	-	-
Little Gull <i>Larus minutus</i>	150	3	-	130	177	24,200	7,900	-	980	7	1,400	200	89	470	8	2,000	870
Black-headed Gull <i>Larus ridibundus</i>	72,700	74,300	8,400	6,300	36,100	24,200	7,900	-	1,200	-	200	5,400	170	89	-	-	-
Slender-billed Gull <i>Larus genei</i>	1,700	6,600	-	210	110	640	6	-	5,800	-	1,500	2,300	5	1,000	-	-	-
Unidentified small gull <i>Larus ridibundus/genei</i>	35,210	35,210	-	23,500	23,500	23,500	6	-	-	-	1,500	2,300	170	1,000	-	-	-
Common Gull <i>Larus canus</i>	4	4	-	1	1	11	-	-	7	-	-	-	83	73	-	-	-
Lesser Black-backed Gull <i>Larus fuscus</i>	70	360	-	95	8	110	35	-	13	-	29	14	7	38	-	-	-
Herring Gull <i>Larus argentatus</i>	220	2,000	-	19	360	1,500	30	-	2	-	29	12	7	38	-	-	-
Gull-billed Tern <i>Sterna nilotica</i>	-	9	-	-	-	30	-	-	-	-	4	2	1	4	6	-	-
Caspian Tern <i>Sterna caspia</i>	4	40	-	-	-	23	62	-	-	-	4	610	1	4	-	-	-
Sandwich Tern <i>Sterna sandwicensis</i>	10	970	-	25	-	223	-	-	-	-	4	2	1	4	-	-	-
Whiskered Tern <i>Chlidonias hybridus</i>	24,500	24,900	-	17,500	17,500	7,400	-	-	-	-	-	-	-	-	-	-	-
Black Tern <i>Chlidonias niger</i>	4	120	-	4	4	7,400	-	-	-	-	-	-	-	-	-	-	-

INTERNATIONAL IMPORTANCE OF EGYPTIAN WETLANDS

Wildfowl and Coot

At the International Conference on Conservation of Wetlands and Waterfowl in Heiligenhafen, Germany (2-6 December 1974), Atkinson-Willes (1976) suggested the use of numerical criteria in assessing the international importance of waterfowl habitats (concerning ducks, geese, swans and coot).

The first criterion attaches international importance to any site (in the Mediterranean region) which regularly supports a total of more than 20,000 ducks, geese, swans and coots.

The second criterion asserts that any site which supports more than 1 per cent of the estimated 'flyway' population of a species (or holds more than 10,000 of a species), is of similar international importance.

Based on our (incomplete!) counts, and using the criteria mentioned above, the conclusion can be drawn that **Lake Burullus, Lake Manzala, Lake Qarun and El Malaha are of international importance** as a wintering area (TABLE VI).

The number of wintering waterfowl in Egypt is estimated at 500,000-650,000, which makes this country one of the most important wintering areas for waterfowl in the Black Sea/Eastern Mediterranean region.

TABLE VI. CRITERION (BASED ON ATKINSON-WILLES 1976), MAXIMUM NUMBER COUNTED AND THE NUMBER OF TIMES THE CRITERION WAS EXCEEDED, PER SPECIES, PER AREA

Species	Criterion	Lake Burullus		Lake Manzala		Lake Qarun		El Malaha	
		n	x	n	x	n	x	n	x
Shelduck <i>Tadorna tadorna</i>	750	—	—	1,011	1.3	16	—	825	1.1
Wigeon <i>Anas penelope</i>	5,000	35,604	7.1	49	—	1,806	0.4	—	—
Teal <i>Anas crecca</i>	7,500	622	0.1	4,733	0.6	1,001	0.1	4	—
Pintail <i>Anas acuta</i>	2,500	40	—	250	0.1	110	—	178	—
Shoveler <i>Anas clypeata</i>	1,500	63,458	42.3	8,833	5.9	11,686	7.8	1,770	1.2
Pochard <i>Aythya ferina</i>	7,500	8,316	1.1	1,257	0.2	321	—	—	—
Tufted Duck <i>Aythya fuligula</i>	3,500	23	—	49	—	5,650	1.6	—	—
Coot <i>Fulica atra</i>	10,000	153,525	15.4	51,272	5.1	18,807	1.9	4	—
TOTAL			66.0		13.2		11.8		2.3

n: number counted x: number of times the criterion was exceeded.

Note: Criteria have not been drawn up for all species of waterfowl.

As there was no data available from Egypt when the criteria was suggested, some of these criteria are too low.

Waders

The estuaries, lakes and salinas of the countries bordering the Mediterranean do not support the numbers of wintering waders found on the Atlantic coasts of Europe and Africa. However, the estimated number of 80,000-130,000 wintering waders in Egypt makes this country one of the most important wintering areas for waders in the Mediterranean region. No criteria for waders in the Mediterranean region have been made, but a preliminary estimate of the number of waders wintering in the Mediterranean region was made by T. Prater (1976; *in litt.*). This estimate, together with the numbers of waders counted in Egypt in the winters 1978/79 and 1979/80 is given in TABLE VII. These figures clearly show the relative importance of the Egyptian wetlands for wintering waders.

Gulls and Terns

No international criteria for gulls and terns have been made. However, it is obvious that Egypt is of international importance for wintering Whiskered Terns.

As Egypt is situated on an important flyway for migratory waterbirds, it is probable that the numbers of birds in autumn and spring are much higher than in mid-winter. Local information confirms this presumption.

TABLE VII. NUMBERS OF THE MAIN SPECIES OF WADERS WINTERING IN THE MEDITERRANEAN REGION AS ESTIMATED BY T. PRATER AND THE NUMBERS COUNTED IN EGYPT IN THE WINTERS 1978/79 AND 1979/80

Species	Mediterranean*	Maximum winter count in Egypt	Estimated no. wintering in Egypt
Oystercatcher <i>Haematopus ostralegus</i>	900	120	300-500
Black-winged Stilt <i>Himantopus himantopus</i>	500	1	10
Avocet <i>Recurvirostra avosetta</i>	19,000	2,800	4,000-10,000
Ringed Plover <i>Charadrius hiaticula</i>	200	1,400	2,000-3,000
Kentish Plover <i>Charadrius alexandrinus</i>	5,770	8,000	15,000-20,000
Golden Plover <i>Pluvialis apricaria</i>	2,100	140	?
Grey Plover <i>Pluvialis squatarola</i>	3,700	420	500-1,000
Knot <i>Calidris canutus</i>	100	—	—
Sanderling <i>Calidris alba</i>	300	1,000	2,000-5,000
Little Stint <i>Calidris minuta</i>	8,000	16,700	25,000-40,000
Curlew Sandpiper <i>Calidris ferruginea</i>	100	1	?
Dunlin <i>Calidris alpina</i>	85,100	7,600	15,000-30,000
Ruff <i>Philomachus pugnax</i>	600	380	1,000-2,000
Black-tailed Godwit <i>Limosa limosa</i>	12,050	23	50
Bar-tailed Godwit <i>Limosa lapponica</i>	200	—	—
Whimbrel <i>Numenius phaeopus</i>	100	1	5
Curlew <i>Numenius arquata</i>	7,400	140	200-400
Spotted Redshank <i>Tringa erythropus</i>	1,100	180	400-800
Redshank <i>Tringa totanus</i>	9,250	5,300	8,000-10,000
Greenshank <i>Tringa nebularia</i>	150	210	300-500
Turnstone <i>Arenaria interpres</i>	300	55	100-200

*Excluding Egypt, Albania, Yugoslavia, Lebanon, Israel and Lybia.

THREATS TO EGYPTIAN WETLANDS

To maintain the important function of Egyptian wetlands in the future, measures have to be taken to preserve these areas. During our waterbird survey, we made a thorough investigation of the threats to the areas involved. It was found that nearly all Egyptian wetlands are more or less seriously threatened, at present or in the near future.

These threats vary from birdcatching and egg-robbing activities by natives to large scale reclamation projects, which—if not stopped in time—will destroy entire coastal wetland ecosystems.

In TABLE VIII these threats, as far as recognised by the authors, are summarised. Further detailed information concerning these threats can be found in Meininger and Mullié (1981).

The most direct and serious threat comes from continuous land reclamation. Up to now at least 25 per cent (700 km.²) of the coastal wetlands in the Nile Delta have already been reclaimed (Meininger & Mullié 1981), while there are plans for reclamation of other large areas. In 1972 the total area of reclaimed saltmarsh in the Nile Delta was already estimated at about 4,000 km.² (George 1972)! Furthermore salinity changes, for instance by large scale irrigation projects,

will affect a number of wetland areas if no proper measures are taken to prevent this. Due to the dumping of silt from the new by-pass of the Suez Canal near Port Said, El Malaha dried up completely in the summer of 1981, while this area contained the only breeding colonies of Flamingo and Slender-billed Gull in the south eastern Mediterranean. Mass oil spills from oil platforms or oil shipment, industrial pollution, uncontrolled touristic development of the Mediterranean and Red Sea coasts are (potentially) serious threats to wetlands and waterbirds.

TABLE VIII. THREATS TO EGYPTIAN WETLANDS FROM AN ORNITHOLOGICAL POINT OF VIEW

AREA	PRESENT AND FUTURE THREATS								
	Land reclamation	Dredging activities	Salinity changes and irrigation	HUMAN DISTURBANCE				POLLUTION	
				Fishing activities	Bird hunting, catching, egg robbing, etc.	Tourism	Other	Industrial and human sewage	Oil exploitation
Lake Maryut	x			x					x
Malahet Maryut			x						
Lake Idku	x	x		x	x				
Lake Burullus	x			(x)	(x)				
Lake Manzala	x			x	x				
Nile Delta	x				(x)			x	(x)
Wadi Natrun			x						
Lake Qarun			x		(x)				
Wadi Ruwayan									
Bitter Lakes c.a.									
El Malaha	(x)	x	x		(x)				
Lake Bardawil	(x)		x	(x)	x				
Red Sea coast									
—Ras Mohammed						x			x
—Isle of Tiran					(x)	x		(x)	x
Nile Valley								x	
Lake Nasser					(x)				

Brackets indicate an unknown impact.

PROPOSALS

The Egyptian wetlands are of vital concern to a significant wildlife heritage of international origin. We consider that at least the following areas should be protected as wildlife reserves namely: Lake Burullus, parts of Lake Manzala and Lake Bardawil, El Malaha, the Ras Mohammed area of Sinai and some of the Red Sea Islands (including the Isle of Tiran). (See also Meininger & Mullié 1981). For Lake Qarun and the Faiyum oasis, facilities for 'ornithological holidays' are proposed to replace the hunting and sporting activities that are permitted there at the moment.

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SUMMARY

In the winters 1978/79 and 1979/80 a Netherlands Ornithological Expedition visited all important Egyptian wetlands in order to carry out counts of wintering waterbirds and to collect information on the threats to these wetlands. This paper presents the results of the counts. Based on these (incomplete) counts and using the criteria for wetlands of international importance, the conclusion can be drawn that Lake Burullus, Lake Manzala, Lake Qarun and El Malaha (Bur Fuad) are wintering areas of international importance for ducks and Coot. Several areas are also important for wintering waders, gulls and terns. One of the most important discoveries was the large numbers of Whiskered Tern *Chlidonias hybridus* in Lake Manzala and Lake Burullus (total 25,000).

Nearly all Egyptian wetlands are more or less seriously threatened, for instance by reclamation, tourism, pollution and industrialisation. Regarding the major function of the Egyptian wetlands as staging and wintering areas for birds from Europe and Western Asia, it is strongly suggested that measures to protect these areas are urgently needed.

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THE FIELD IDENTIFICATION AND STATUS OF DUNN'S LARK

by

P. D. Round and T. A. Walsh

INTRODUCTION

Dunn's Lark *Eremalauda dunnii* is a comparatively little known species of desert and sub-desert regions of the Middle East and North Africa, of which two sub-species are recognised: *E.d.dunnii* of the Sudan and the southern Sahara and *E.d.eremodites* from the Arabian Peninsula (Vaurie 1959). The distribution of the species is poorly known and when a specimen was secured, a bird photographed at the nest and several seen north west of the Azraq oasis, Jordan in May, 1965 and 1966 (Boyd 1967), this represented a northward range extension of about 960 km. from the nearest known breeding areas north of Mecca, Saudi Arabia (Meinhertzshagen 1954). We have recently identified Dunn's Lark in Israel, and the aim of this paper is to document our records, and, with reference to identification features and the present status of the species, to alert other observers to the possibility of encountering it outside its known breeding range.

The authors have made the following sightings:—

30 March 1978. Four or five separate birds (including two singing) about 10 km. south west of Nizzana on the Sinai-Israel border (30° 53'N, 34° 20'E) in an area of flat, sandy wadis with sparse low vegetation set between low rocky hillsides. Both Hoopoe Lark *Alaemon alaudipes* and Bar-tailed Desert Lark *Ammomanes cincturus* were also present in the area (T. A. Walsh with M. R. Alibone, R. P. Martins, D. J. Pitman and S. M. Whitehouse).

24 May 1980. A single bird about 2 km. north east of Ein-Gev, near the eastern shore of Lake Tiberias (32° 47'N, 35° 39') in an area of low rolling hills covered with dry, rank grass, scattered shrubs and boulders. No other larks were noted in the vicinity (P. D. Round).

The fact that the Ein-Gev bird was not singing or exhibiting any other evidence of territoriality suggests that this bird was a non-breeding vagrant, whilst the birds noted at Nizzana may well have been on breeding territory. It should be noted that no birds were seen in a visit to the latter area in April, 1979 (D. J. Fisher, S. J. M. Gantlett and K. Harrison *pers.comm.*).

DESCRIPTION

The following details are based on our extensive field-notes and several colour transparencies of both the Ein-Gev bird and one of the Nizzana individuals (the latter photographed by D. J. Pitman).

Size and Shape A small lark, closer in size to Bar-tailed Desert Lark *Ammomanes cincturus* than Desert Lark *A.deserti*. Folded wings reach at least as far as the upper tail-coverts and primaries project only a few millimetres beyond the longest tertial. Wings appear broad and rounded in flight.

Plumage Basically a pale sandy-coloured lark with noticeably streaked upperparts and a variably streaked breast and with a distinctive tail pattern, especially noticeable in flight. Details: upperparts streaked with dark brown from crown through nape and mantle to rump. Crown densely and neatly streaked but streaking coarser and less contrasting on mantle and nape, but still neat and easily discernible. The overall appearance of the upperparts is a pale rufous or pinkish-isabelline colour, with the rufous most pronounced on the wing coverts and especially the remiges. The Ein-Gev bird also appeared quite rufous on the crown although the Nizzana birds seemed to have a more greyish cast both on the crown and the rest of the upperparts. Nape pale and greyish in all individuals seen without the warmer tones of the mantle and crown. Thin, pale margins to the wing-coverts and remiges but with non real contrasts, as seen in Lesser Short-toed Lark *Calendrella rufescens* for example.

Lores pale, broad creamy area around eye which is bordered with a faint dark mark on the lower margin. Slight creamy supercilium starting above the eye and extending only a short distance back toward the nape. Indistinct dark line extending behind the eye. Centre of ear-coverts very pale, faintly bordered with dark on hind margin but no contrasts noticeable.

Pencil-thin dark moustachial stripe, whitish sub-moustachial stripe and a malar stripe of variable prominence, from a broken greyish line to a distinct short dark line especially obvious in some individuals viewed head-on. Pale creamy to white underparts with variable amounts of streaking on sides and centre of chest. Some birds have neat dark streaking extending across the upper-breast, thickest at the sides but this is reduced to blurred greyish streaks in other birds (the Ein-Gev bird for example).

Folded tail sandy-rufous with very dark lateral margins, appearing virtually black in the field. From below, the tail appears almost completely dark. In flight, the blackish outer portions of the tail are particularly obvious, extend uniformly from the rump to the tip of the tail, and contrast sharply with the sandy-rufous central feathers. A very thin pale margin to the outer tail feathers is detectable in good viewing conditions.

Bare Parts The pink tarsi appear strikingly long and the bill appears disproportionately large and deep at the base. Its length is approximately half that of the head and bluntly tapers at the tip. Colour varies from pink to almost orange but is always noticeably pale. The eye is dark.

IDENTIFICATION

The lack of adequate field descriptions of Dunn's Lark has probably hampered its separation in the field from the *Ammomanes* larks. However, increasing numbers of bird-watchers are becoming familiar with Desert Lark, a common bird in dry, rocky situations throughout its range, and also with the Bar-tailed Desert Lark, a true desert or sandy desert-loving species. Some of the features which distinguish these two species have been summarised by Sharrock (1980) and Dean (1980). Notwithstanding the bewildering variety of tones and shades of Desert Lark of which no fewer than 17 races are recognised (Vaurie 1959), Dunn's Lark is easily separable from it. The obvious streaking of Dunn's Lark also means that it should be distinguished from the *Calandrella* larks, particularly Lesser Short-toed Lark, whilst the tail pattern somewhat resembles that of Temminck's Horned Lark *Eremophila bilopha* so observers should be wary of juveniles of this species lacking the face pattern of the adults.

We intend to draw attention to the salient identification features of Dunn's Lark and to discuss them in relation to the possible confusion species. In compiling this section, reference has been made to the extensive collection of skins at the British Museum and also at the University of Michigan, Ann Arbor, U.S.A. We have also been able to draw on the experience of other observers familiar with these species elsewhere in the Middle East. It is perhaps worthwhile noting here that photographs of the species appear in Gooders (1970), Nelson (1973), Silsby (1980 and ter Haar (1981). A sketch of the bird is on page 80 (*Figure 1*).

Tail Pattern

The black outer margins of the tail contrasting with the pale reddish-brown centre is perhaps the single most distinctive feature of Dunn's Lark and is well illustrated in Etchécopar and Hüe (1964). The tail patterns of Desert and Bar-tailed Desert Lark have been thoroughly discussed by Dean (1980) and neither species shows complete dark margins at the sides of the tail but rather have varying amounts of darker colouration across the whole distal end of the tail.

Observers must be aware of Lesser Short-toed Lark which has a tail pattern that superficially resembles that of Dunn's Lark i.e., pale brown central tail feathers, with darker outer margins, but this species has obvious white edges to the outermost tail feathers. The last-mentioned feature should be sufficient to distinguish the species although it should be noted that Dunn's Lark has a thin, pale margin to the outermost tail feather which can be discernible in the field. Also, the extensive variation in races of Lesser Short-toed Lark could cause confusion to observers that are unfamiliar with the species' diverse forms (Vaurie, 1959) and therefore it is advisable to be at least familiar with *C.r.minor*, one of the paler and more rufous forms, which is sympatric with Dunn's Lark over much of its range.

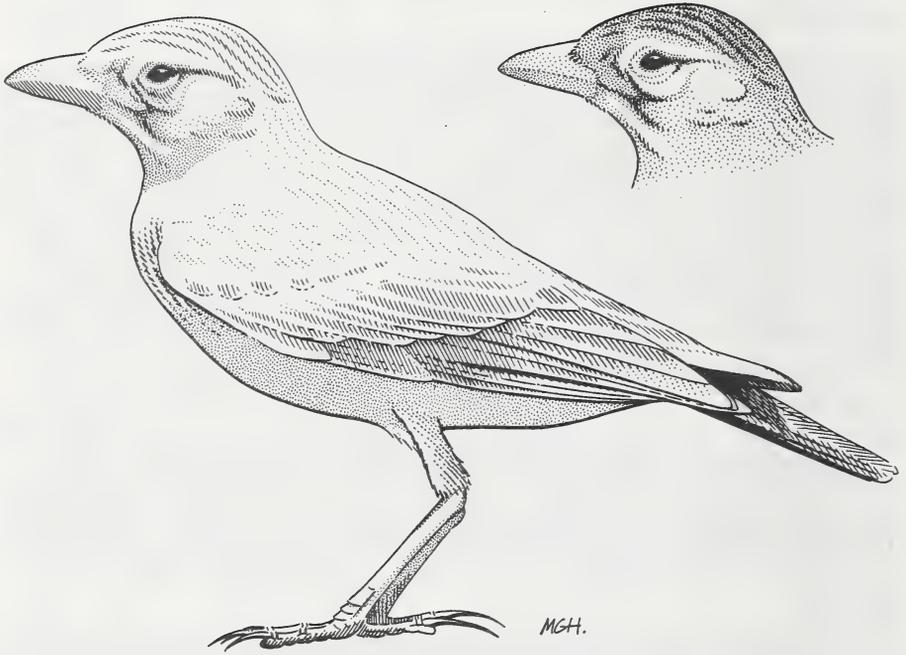


Figure 1. Dunn's Lark—*Eremalauda dunnii*. Drawn by M. Hodgson.

Bill

The massive bill of Dunn's Lark is immediately striking. The culmen is initially straight but shows a pronounced curve in its distal third and this, together with its deepness at the base, combines to give Dunn's Lark a characteristically heavy, conical bill. In contrast, the bill of Desert Lark is more gently tapered and the culmen slightly and more evenly curved whilst those of Bar-tailed Desert Lark and Lesser Short-toed Lark are short and rather fine.

Bill colouration in Dunn's Lark appears to vary from a uniform pale pinkish to almost orange, sometimes with darker cutting edges or darkening towards the tip. The large pale appearance, however, is consistent.

Legs

Although Dunn's Lark may appear longer-legged than Desert Lark, the obtusiveness of this character varies with posture. Certainly, the birds we have observed have all carried their bodies away from the ground and have had a bold posture unlike that of the hunched, mouse-like carriage often adopted by the *Calandrella* larks for instance. The leg colouration is usually pink rather than the brownish-horn of Desert Lark.

Wing Shape

On the folded wing of Dunn's Lark, the projection of the primaries beyond the tertials is short (less than a quarter of the length of the tertials) so that in this respect, the species bears a close resemblance to Lesser Short-toed Lark. However, Lesser Short-toeds show even less primary projection. Both Desert and Bar-tailed Desert Larks are strikingly long-winged by comparison and the primary projection is about half as long again as the tertials.

Body Plumage

The streaked upperparts of Dunn's Lark immediately distinguish the species from the two *Ammomanes* larks although Desert lark in particular can show slight suggestion of streaks, a pitfall to the unwary. Lesser Short-toed Lark, which also has well streaked upperparts, has consistently much darker feather centres to the upperparts and a prominently streaked upper-breast. Note that the latter feature may also be attained by some well-marked Dunn's Larks. The darker ear-coverts of Lesser Short-toed Lark are also a useful distinguishing feature.

The face pattern of Dunn's Lark, although subdued, is quite complex. The broad whitish area around the eye gives a 'staring' appearance and the moustachial and particularly the malar stripe can be well-developed. The facial pattern of Desert Lark is comparatively simple usually consisting of an ill-defined dark line through the eye and a pale supercilium more distinct in front of, rather than behind, the eye. The eye looks comparatively small.

The North African race of Dunn's Lark, *E.d.dunni*, is slightly smaller and more brightly tinged rufous on the upperparts than the Arabian *eremodites*.

SONG, CALLS AND BEHAVIOUR

The song of two birds heard at Nizzana consisted of a scratchy warbling interspersed with a melodious but melancholy whistling of short phrases. No song-flight was observed and the song was delivered from the ground. Two types of call were heard: "ziup", or "chiup, chiup" uttered in flight either singly or repeated, and a thin, liquid "prrrr" (unlike the dry sharp "prrrt" of Lesser Short-toed Lark).

D. I. M. Wallace (*in litt.*) has described similar vocalizations from birds at Azraq, Jordan. The song was noted as "a rather sad warble confusable with Bar-tailed Desert Lark but more developed with intermediate phrases linking bell-like notes". Note that the melancholy quality of the song is again described, but in this case, the song was given in a "loose and floppy song-flight". A sub-song was also given from the ground. Calls noted at Azraq by Wallace were a loud, ringing "chee-ooop" in full alarm (again similar to the Nizzana description) and also "chup-chup-chee-oo" on flushing. Gallagher and Woodcock (1980) describes the call as a nasal, often repeated "pee-ooo-peep" and the song as a creaky twittering. Walker

(1981), from birds observed in Oman, describes the song as a soft repeated "dree-dree-up", the alarm note as "tu-wep" and the flight call as "tree-chup" or "two-weep."

All the birds seen by us were surprisingly tame and allowed approach to within 5 metres. When flushed, the Ein-Gev bird flew up onto boulders in full view although it usually kept to the shade, close under boulders and low shrubs. Wallace likewise noted the species' tameness and its close association with the shade provided by small bushes. In Saudi Arabia, Dunn's Lark freely associated with other larks, especially Bar-tailed Desert Lark and Lesser Short-toed Lark (M. C. Jennings, *in litt.*) and the initial sighting by T. A. W. *et al.* was of a bird accompanied by a Bar-tailed Desert Lark. At Azraq, they were seen in association with these species and with Crested Lark *Galerida cristata* and Temminck's Horned Lark.

HABITAT

It is clear that Dunn's Lark is primarily a bird of sub-desert or attenuated desert situations. In Saudi Arabia, it mainly occurs in sandy scrub desert, in gravel deserts and in open areas where there are *acacia* bushes and trees (Jennings, 1980). It is "perhaps more inclined to slight grass and bush" than Bar-tailed Desert Lark (Meinhertzagen 1954). At Azraq, it was found in silted wadis with thick small shrubs and at the interface of basalt and limestone where there were abundant grasses and flowers (D. I. M. Wallace, *in litt.*). The North African race occurs on grass plains in the Sudan (Mackworth-Praed & Grant 1952). In Zemmour, N. Mauretania, de Naurois (1974) found it breeding on a sandy plain flushed with abundant greenery following autumn rains. It is noteworthy that Walker (1981) also recorded Dunn's Lark in Oman in area of steppe where there was an abundance of grass after extremely heavy rains.

STATUS

Dunn's Lark is described by Inbar (1979) as a very rare straggler to desert areas in Israel, based on one report of a bird found dead south of Ein-Zukim, at the northern end of the Dead Sea on 17 May 1975. However, according to Haim Hovel (*in litt.*), the original identification was erroneous and the bird, a juvenile, is referable to Desert Lark *Ammomanes deserti*. The skin is held in the Tel-Aviv University Collection.

In addition to the records detailed in this paper, there has been another sighting at Ma'agen Mikhael on the Mediterranean coast south of Haifa on 7 April 1980 (ter Haar 1981). It is perhaps surprising that there are not more records for Israel since the species may be resident around Haql on the Arabian shore of the Gulf of Aqaba, less than 30 km. from Eilat, where it was seen on random visits throughout the year (Stagg 1979). A specimen has been collected in Lebanon at Beirut airport on 20 April 1961 (Harrison 1962).

The species appears to be common on its breeding grounds and in a 20 mile sector near Azraq it accounted for eight of 28 lark sightings (D. I. M. Wallace *in litt.*) while Jennings (*in litt.*) mentioned that it was sometimes the most common lark species around Riyadh. He considered that the species was nomadic, a behavioural trait employed by many desert birds in order to fully utilise optimal conditions even though these may occur in different, widely separated areas from year to year. This would explain the uncertainty over the breeding distribution of Dunn's Lark and its isolated occurrences. As noted previously, none was seen in the area near Nizzana in April 1979 where Walsh *et al.* found birds apparently holding territory in the preceding year.

It seems likely that more records will emerge from the countries to the north and west of the Arabian Peninsula in the next few years. Visitors to North Africa should also look out for Dunn's Lark. Over the last half century, specimens have been taken in southern Algeria, Mali and Niger (Heim de Balsac & Mayaud 1962) while the recent breeding records from Mauretania (de Naurois 1974) would suggest that the species could stray into southern Morocco.

ACKNOWLEDGEMENTS

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SUMMARY

Two recent records of Dunn's Lark from Israel are documented and the identification features of the species discussed. It is possible that the species has previously been overlooked outside of its known breeding range due to confusion with commoner lark species and because of its sporadic occurrence.

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SOME NOTES ON BIRD MIGRATION IN THE AREA OF THE GULF OF SUEZ (EGYPT), AUTUMN 1980

by

Peter L. Meininger, Sherif M. Baha el Din and Wim C. Mullié

INTRODUCTION

In recent years a lot of information has been published on the migration of raptors in the Middle East. This information was recently summarised by Cramp and Simmons (1980) in the second volume of *The Birds of the Western Palearctic*. This summary emphasised the striking lack of records made in the region of the Gulf of Suez (Egypt). Among the more important papers dealing with raptor migration in this area are those of Goodwin (1949), Mackintosh (1949), Simmons (1951), Tennent (1967) and Meininger and Dielissen (1979). However, none of these papers gives detailed information about an extensive observation period and information on identified birds is poor.

Wim C. Mullié visited the Hurghada area from 10-14 September 1980. From 6-12 October 1980 Sherif M. Baha el Din and Peter L. Meininger carried out daily counts of raptors migrating past the head of the Gulf of Suez. Peter L. Meininger visited Hurghada between 18 and 20 October 1980. In this paper the information on bird migration collected during these trips is presented.

OBSERVATIONS NEAR SUEZ

The observations were made from the beach near Ataq, about 13 km. to the south of Suez and about 4 km. east of the foot of the Ataq Mountains. Watch was kept from 08.00 hrs. to 17.00 hrs., using 7 × 42 and 10 × 50 binoculars. It was not until about 09.00 hrs. that there was any passage of raptors overhead and hardly any passage was noticed after 16.00 hrs. The prevailing wind throughout the period was north or a point east of north.

TABLE I shows the number of raptors counted. The numbers given are of birds actually counted, and can therefore be safely taken as minima. Since the birds often passed very high, tending to come over in waves and on a wide front, a lot of them probably escaped the count.

We counted just over 10,000 raptors, a clear indication that Suez is (still) an important site for the observation of raptor migration. A more detailed study over a longer period, both in autumn and spring, would certainly be rewarding and could contribute to a better knowledge of the migration routes used by raptors in the Middle East.

The migration of species other than raptors was rather poor. Single Black Storks *Ciconia nigra* were seen on 6 and 12 October. A White Stork *Ciconia ciconia* was seen on 6 October. Bee-eaters *Merops apiaster*, Short-toed Larks *Calandrella brachydactyla*, Swallows *Hirundo rustica*, Tawny Pipits *Anthus campestris*, Red-throated Pipits *Anthus cervinus*, Yellow Wagtails *Motacilla flava* and White Wagtails *Motacilla alba* were seen daily, migrating in small numbers. On 6 October a Richard's Pipit *Anthus novaeseelandiae* was seen.

NOTES ON SOME RAPTORS SEEN AT SUEZ

Gyps fulvus

Griffon Vulture

Goodwin (1949) estimated that about 19.5 per cent of the c. 20,000 raptors counted during seven days in the period 4-12 October 1947 were Griffons. Our count showed only 0.86 per cent Griffons. This difference may be due to the decline of this species in the Middle East (Cramp & Simmons 1980).

Circaetus gallicus

Short-toed Eagle

About 25 per cent of the raptors we saw were Short-toed Eagles, which is in accordance with Goodwin's (1949) estimation of 30 per cent.

The highest seasonal total at the Bosphorus (Turkey) was 2,342 birds in 1971. At the eastern end of the Black Sea, at Arhavi and Borçka, 243 were counted from 18 August-10 October 1976.

At Eilat (Israel) the species is only seen in very small numbers in autumn. (Cramp & Simmons 1980). Our total of nearly 2,500 indicates that Suez is situated on one of the most important, if not the most important, autumn migration routes of the Short-toed Eagle through the Middle East.

Aquila pomarina

Lesser Spotted Eagle

According to Cramp and Simmons (1980) this species has not yet been identified in the area of the Gulf of Suez. The occurrence was, however, to be expected as Suez is probably situated on an important migration route. The numbers seen at Eilat (Israel) are, both in autumn and spring, much lower (Cramp & Simmons 1980).

Goodwin (1949) says that the greater part of the unidentified eagles in October 1947 were either the Spotted Eagle *Aquila clanga* or the Steppe Eagle *Aquila rapax*, almost certainly both these species being present. We did not succeed in identifying a single Spotted Eagle and the occurrence of this species in large numbers seems most unlikely.

Aquila rapax

Steppe Eagle

The Steppe Eagle has only previously been identified in the Suez area in spring 1980 (de Roever 1980). The number of over 1,100 Steppe Eagles counted at Suez in October 1980 is the highest autumn count known in the Western Palearctic. In spring, however, much higher numbers have been counted at Eilat (Israel), e.g. 29,000 in 1977 (Cramp & Simmons 1980).

TABLE I. NUMBERS OF RAPTORS COUNTED NEAR SUEZ
IN THE PERIOD 6-12 OCTOBER 1980

	Total	October 1980							
		6	7	8	9	10	11	12	
Black Kite	4	1	1	—	—	1	—	—	1 <i>Milvus migrans</i>
Egyptian Vulture	10	—	3	3	2	—	—	2	2 <i>Neophron percnopterus</i>
Griffon Vulture	87	—	7	11	—	2	35	32	32 <i>Gyps fulvus</i>
Short-toed Eagle	2,476	151	570	382	244	447	544	138	138 <i>Circaetus gallicus</i>
Pallid Harrier	4	—	—	1	1	—	—	2	2 <i>Circus macrourus</i>
Sparrowhawk	5	—	2	1	2	—	—	—	— <i>Accipiter nisus</i>
Buzzard	79	5	10	8	4	9	7	36	36 <i>Buteo buteo</i>
Long-legged Buzzard	10	—	2	1	—	—	2	5	5 <i>Buteo rufinus</i>
Lesser Spotted Eagle	5,624	840	1,120	620	520	388	891	1,245	1,245 <i>Aquila pomarina</i>
Steppe Eagle	1,137	25	120	279	131	91	191	300	300 <i>Aquila rapax</i>
Unidentified Eagle	589	57	194	124	4	—	100	110	110 <i>Aquila sp.</i>
Booted Eagle	10	—	2	2	1	—	5	—	— <i>Hieraetus pennatus</i>
Kestrel	18	6	3	1	1	4	1	2	2 <i>Falco tinnunculus</i>
Red-footed Falcon	4	—	—	1	—	3	—	—	— <i>Falco vespertinus</i>
Hobby	4	—	1	—	1	—	—	2	2 <i>Falco subbuteo</i>
Lanner	1	—	—	—	1	—	—	—	— <i>Falco biarmicus</i>
Unidentified Falcon	4	—	—	1	—	1	—	2	2 <i>Falco sp.</i>
TOTAL RAPTORS	10,066	1,085	2,035	1,435	912	946	1,776	1,877	

OBSERVATIONS NEAR HURGHADA

From 10 to 14 September the only notable migration near Hurghada was that of White Storks. This species crosses the mouth of the Gulf of Suez from the southernmost tip of the Sinai peninsula to the Hurghada area (see for example Reed & Lovejoy 1969). In the evening of 10 September, several hundreds were seen standing on the shore in the Bay of Mios Hormos near Ras Gemsa. On 12 September, from 07.15 to 08.45 hrs., 18,600 were seen migrating

24 km. north of Hurghada. In the early morning of 14 September a flock of 450 was seen from a moving bus near Ras Gemsa.

The lack of raptor migration here was striking, both in September and in October. The only raptors seen crossing the Gulf of Suez near Hurghada were 17 Honey Buzzards *Pernis apivorus* and two Buzzards *Buteo buteo* on 11 September, two Marsh Harriers *Circus aeruginosus* on 13 September and a Bonelli's Eagle *Hieraetus fasciatus* on 19 October. Apparently most raptors use the Suez route in autumn to avoid the water crossing of the mouth of the Gulf of Suez.

Other interesting records of migrating birds were those of a Purple Heron *Ardea purpurea* on 12 September and of 60 Cranes *Grus grus* on 19 October.

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THE VISIBLE MIGRATION OF PASSERINES AND NEAR-PASSERINES
AT THE BELEN PASS, SOUTHERN TURKEY, IN AUTUMN

by

William J. Sutherland and Duncan J. Brooks

INTRODUCTION

Very little has been published on visible migration of non-soaring birds in the Near East. The following notes are a summary of observations made during a migration study of raptors, storks *Ciconia spp.*, pelicans *Pelecanus spp.*, and Spoonbills *Platalea leucordia* at the Belen Pass, near Iskenderun, southern Turkey. Observations lasted from 2 August to 23 September 1976 and were made continuously between 06.00 and 19.00 hrs. local time; for details of the area and recording technique, see Sutherland and Brooks (1981). The prime object of the study was to document the passage of large soaring birds and, although efforts were made to record all migrants, the numbers of passerines and near-passerines visible from the recording site may be consequently underestimated, especially during peak periods of raptor passage (though these did not usually coincide with peaks of other migrants). *All records relate to birds considered to be active migrants, showing directed flight south-eastwards through the pass.*

All species considered, with the exception of Bee-eaters *Merops apiaster*, showed an early morning peak in activity (*Figure 1*). In the early morning birds flew low over the ground and straight up the pass. Later in the day swifts *Apus spp.* and hirundines (Hirundinidae) flew higher and less directly, often circling and feeding. The increased difficulties of recording consequent upon this behaviour may have led to an underestimation of the later passage of these species.

Streptopelia turtur

Turtle Dove

248 passed through, of which 226 were in the period 3-12 September. At Eilat, Israel, the majority of sightings were in September (Safriel 1968). Birds were in flocks of up to 45 (mean 9.0); all flocks were single-species. There was an early morning peak in the number of flocks (31 were observed between 06.00 and 09.00 hrs.) but two of the three flocks which occurred in the afternoon were large (45 and 31); thus *Figure 1* does not show a clear morning peak.

Apus spp.

Swifts

4,510 Swifts *A. apus* passed through, 3,876 of these between 19 and 29 August. Of 1,580 Alpine Swifts *A. melba*, 1,438 were seen between 7 and 23 September. Thus Swifts passed earlier in the season than Alpine Swifts (mean dates 27 August and 14 September respectively, though these are the means for the study period and will therefore be earlier than the mean for the whole passage). The main departure of Alpine Swifts is normally much later (October-November) than that of Swifts (O.S.T. 1969) whose peak passage was over before the end of our study. Swifts appeared to migrate later in the day (see *Figure 1*) and occur in larger flocks than Alpine Swifts (mean flock sizes 17.7 and 7.4 respectively). Of 255 Swift flocks: 10 included Alpine Swifts; 13, hirundines; five, Alpine Swifts and hirundines; one flock was with two Honey Buzzards *Pernis apivorus*. Of 223 Alpine Swift flocks: 10 included Swifts; nine, hirundines; five, Swifts and hirundines; one flock was with 59 raptors. Feeny *et al.* (1968) suggested that at their study site in the South Caspian many swifts flew too high in fine weather to be seen. All the swifts seen in this study were well below the height at which any might have been missed.

Only one Pallid Swift *A. pallidus* was seen, on 23 September, but this was probably not migrating. In late September and early October of 1974, 30-40 were present at Iskenderun (O.S.T. 1978). Unidentified swifts totalling 226 were also recorded.

Merops apiaster

Bee-eater

All positively identified *Merops* were of this species. However, as some were recorded at long range or noted only by their call, the possibility of a few Blue-cheeked Bee-eaters *M.*

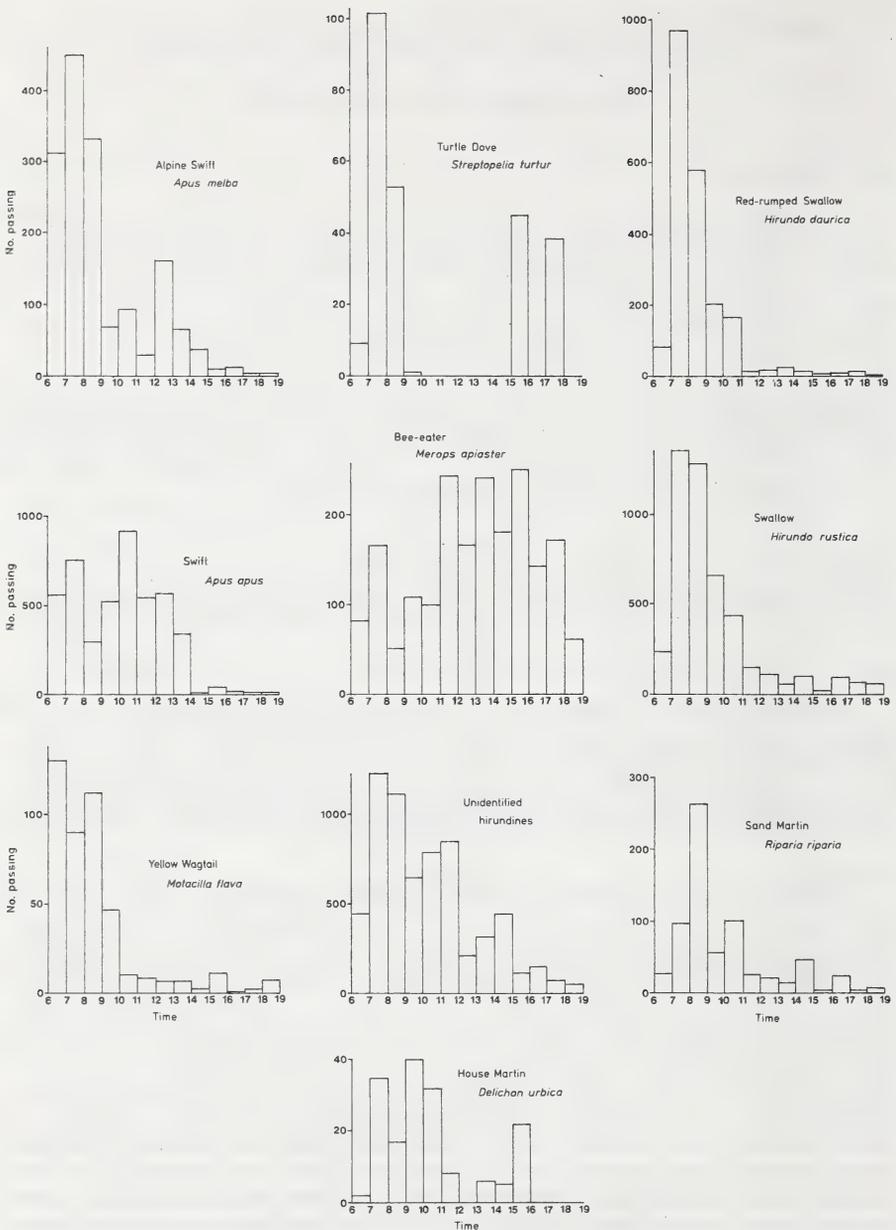


Figure 1. Total numbers of passerines and near-passerines observed migrating through the Belen Pass, Southern Turkey, in each hour period, 24 August–23 September 1976.

superciliosus occurring within these totals cannot be excluded, though this species normally occurs only in very small numbers in the area (O.S.T. 1978).

1,928 were counted, all after 27 August. In the South Coastlands in 1969, the peak passage occurred during the third week of September (O.S.T. 1972). Of the total, 17 were heard only; most of these records presumably relate to flocks but were counted as single birds. The birds occurred in flocks of up to 77 (mean 19.7). Only three mixed flocks were seen: one with a Swift, another with a Sand Martin *Riparia riparia* and one with two Sand Martins and four unidentified hirundines.

Hirundinidae

Hirundines

A total of 14,094 of which 13,103 were after 25 August. 6,389 were not identified specifically, but 702 of these were unidentified swallows *Hirundo* and 15 were unidentified martins. Martins occurred in smaller flocks than swallows. Mean flock sizes were: Sand Martin 4.3; Swallow *Hirundo rustica* 7.4; Red-rumped Swallow *H. daurica* 9.1; House Martin *Delichon urbica* 4.1. Hirundines often occurred in mixed flocks; usually with other hirundines (fifty five occasions) but also with Swifts (thirteen occasions), Alpine Swifts (nine occasions) and Bee-eaters (twice).

Of 4,744 Swallows, 4,658 occurred after 19 August; 1,964 of the 2,093 Red-rumped Swallows occurred between 29 August and 20 September. At Eilat, Israel, Red-rumped Swallows were considerably rarer than Swallows (Safriel 1968).

Of the 683 Sand Martins, 614 occurred after 6 September. The peak passage of House Martins was between 21 and 30 August when 103 of the 147 occurred. 18 Crag Martins *Ptyonoprogne rupestris* were recorded in flocks of up to eight from 22 August to 20 September.

Anthus spp.

Pipits

Between 7 and 22 September, 24 passed through, with eight on 15 September. Occurred in flocks of up to five (mean 2.0). Of the total, eight were identified as Tawny Pipits *A. campestris*.

Motacilla flava

Yellow Wagtail

433 passed through, of which 346 were between 2 and 15 September; 54 were heard only and have been counted as single individuals but were ignored in calculating mean flock size. None was seen well enough to identify subspecifically. Birds occurred singly or in very small flocks (mean 1.8). The only mixed flock was of two Yellow Wagtails and two unidentified larks.

Motacilla cinerea

Grey Wagtail

Nine recorded: one on 9 August and a flock of eight on 10 August. The species is widespread on passage in the Black Sea Coastlands from mid-August to early October (O.S.T. 1975).

Motacilla alba

White Wagtail

Singles on the 19 and 26 August. This species passes through Thrace during late September and early October and is largely a winter visitor to the Southern Coastlands, from September (O.S.T. 1975).

Motacilla spp.

Wagtails

A flock of eight on 6 August and another of two on 25 August.

Totals of species recorded only in small numbers were: unidentified sandgrouse (Pteroclididae) nine; Collared Dove *Streptopelia decaocto* one; Roller *Coracias garrulus* five; unidentified larks (Alaudidae) five; Golden Oriole *Oriolus oriolus* three.

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RED-BREASTED FLYCATCHER—A NEW BREEDING SPECIES FOR TURKEY

by

J. S. M. Albrecht

The previously published range of the Red-breasted Flycatcher *Ficedula parva* includes both Bulgaria and the Caucasus Mountain region of the Soviet Union (e.g. Heinzel *et al.* 1972). It is therefore of little surprise that the species should be discovered breeding in Turkey. Voous (1960) suggested the possibility by putting a question mark on Turkey in his map of the Red-breasted Flycatcher's breeding range.

The observations described here were made by the author on 9 and 12 June 1978. The birds were in deciduous forest at about 1,000 metres in the Western Pontic Mountains south of Karadeniz Éregli (41.20 N. 31.25 E.).

On 9 June a pair of Red-breasted Flycatchers was watched carrying food into a bush at the side of a road. The first impression of the male was of an odd Robin *Erithacus rubecula* with drooping wings and a cocked tail.

The following notes were made: The head from the upper mandible to the nape, including the cheeks, was brown. No eye stripes or other facial markings were seen. The back from the nape to the tail and the upper surface of the wings were also brown. The chin and the breast were a conspicuous red like that of a Robin. The lower breast, flanks and belly were pale. The vent area appeared white. The tail, which was much darker than the back, had white at the base of the outer tail feathers. The white was inconspicuous when the bird was on the ground but conspicuous in flight. Both the upper and the lower surfaces of the tail showed the same flight pattern. The female was generally paler than the male without the conspicuous red on the breast.

On 12 June a different pair was watched feeding a newly fledged juvenile about a kilometre from the first site. The following description of the juvenile was made: The head was mottled dark brown with long down still on the crown. The eye was dark with a pale eye ring. The bill was pale with a yellow gape. The back was not seen. The breast was mottled brown. The lower breast, flanks and belly were light grey. The tail was very short but had the adult pattern. The juvenile made a rapid ticking call when an adult was close. This was thought to be a food begging call although feeding was only observed once. The male at least gave a regular "cheep" call but it was not clear if this was aimed at the observer or the juvenile. A tape recording was made of the calls which were later compared with a gramophone record recording of Red-breasted Flycatcher (Palmer & Boswall 1972). The male's calls were the same as the calls on the record and the juvenile's calls were similar to the alarm calls.

The pair which were first observed on the 9th had moved about 80 metres from their original position and were carrying food into a different bush. No juvenile could be located through the dense foliage.

According to Harrison (1975) the Red-breasted Flycatcher usually nests in a tree or in a hole in a wall. The birds on the 9th were carrying food into a bush which seemed to have no suitable nest site and it is likely that they were feeding newly fledged young on that date. The juvenile on the 12th was on the lower branches of some trees and it is likely that it had recently fledged since it still had some down. Assuming a nestling period of 11-15 days (Harrison 1975) the eggs hatched on about 28 May. This date is consistent with a laying date in mid-May.

Voous (1960) describes the habitat of the Red-breasted Flycatcher as "shady mainly heavy forests with dense tree tops; . . . montane beech forests. . . . Not infrequently along trails or over small streams flowing through forests". The habitat occupied by these birds closely fits Voous's description since the dominant tree was beech *Fagus sp.* and the birds were observed beside a forest road which followed the course of a stream.

DISCUSSION

It has been suggested that the Red-breasted Flycatcher might be spreading its range westward in Europe (e.g. Tekke 1967; Radford 1968). However it seems unlikely that this

observation represents an extension of the species' breeding range because there are many gaps in our knowledge of bird distribution in Turkey (Kumerloeve 1975) and the western end of the Pontic Mountains has been surprisingly little visited considering its proximity to Istanbul.

Until recently the Western Pontic Mountains have been covered in untouched deciduous forest but there has now been extensive felling with little sign of replanting. If this situation continues it seems likely that the habitat will be seriously destroyed and that the status of this and other species in Turkey may be threatened.

It is likely that a comprehensive study of the Western Pontic Mountains would be most rewarding not only because little is known about the bird distribution and the ecology of the region but also because mountain forests are a fairly rare yet economically important ecosystem in Turkey.

SUMMARY

1. The first breeding records of the Red-breasted Flycatcher *Ficedula parva* in Turkey (the Western Pontic Mountains) are described.
2. The breeding cycle and habitat do not seem to differ from previously published accounts.
3. It is unlikely that this is an extension of the species' breeding range.

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