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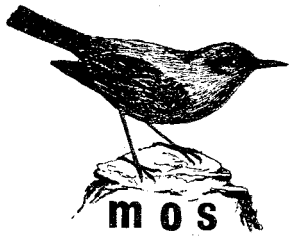

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The Editorial Board welcomes contributions treating any aspect of the Ornithology of the Maltese Islands and the Mediterranean for publication in this Bulletin.

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IL-MERILL No. 21 January–December 1980

Breeding Biology of the Sardinian Warbler

CHARLES CAUCI & JOE SULTANA

Introduction

The Sardinian Warbler *Sylvia melanocephala* is generally a bird of high maquis and other thorny scrub as well as gardens, fruit plantations, parks and light oak woods (Voous 1960). Its status in the Maltese Islands has already appeared elsewhere (e.g. Sultana et al. 1975, Gauci & Sultana 1979).

This paper summarises data from 343 nest record cards for the Sardinian Warbler. Nest record cards, modelled on those in use by the British Trust for Ornithology, were introduced by the Malta Ornithological Society in 1967 but hardly any cards were filled before 1975 when, with the number of active ringers increasing, an effort was made to induce ringers to take an interest in them. Most ringers, however, still found it difficult to locate nests and apart from cards filled by the authors, very few were submitted by other members. In the breeding seasons of 1978-80 a special effort was made to complete as many cards as possible. 75 cards were submitted in the period 1967-77, 67 in 1978, 128 in 1979 and 73 in 1980. This number is small; nevertheless, because of the detail which most of the cards contain, it has been possible to produce an informative dossier.

Nests were mainly located by systematically searching bushes and it is likely that in the areas searched in 1978-80 very few nests were missed. Normally each area was covered every fortnight to search for new nests. Once located, nests were checked at least once weekly. The main areas searched were Ta' Qali, Buskett, Xemxija, and a few rocky valleys such as Wied l-Isperanza. Ta' Qali is a disused airfield and large parts of it were recently converted to agricultural land. Other extensive areas were planted with conifers - mainly Aleppo Pine *Pinus halepensis* and Cypress *Cupressus sempervirens* the latter acting as wind breaks. In spring 1980 most of the pine plantation, which had reached an average height of 1.5 m., was inexplicably cleared. Buskett is a small area of mixed woodland, while Xemxija is a small plantation of Acacia *Acacia cyanophylla*, Tamarisk *Tamarix gallica* and Eucalyptus *Eucalyptus amygdalinus*. The acacia and tamarisk, in which the Sardinian Warblers breed, had reached an average height of 4.5 m. by spring 1980. The rocky valleys were mainly low maquis and the vegetation was extensively damaged after the floods of October 1979.

Breeding Season

The date on which the first egg of a clutch was laid has been taken as the onset of breeding. The exact date was recorded on relatively few cards, but it could be easily estimated using conventional methods (e.g. Newton 1964). For this purpose the incubation period has been taken as thirteen days. In nests found with young, the age of the nestlings could be estimated fairly accurately. Data on the start of breeding was available from a total of 330 cards. The percentage of clutches started in each five-day period is shown in Figure 1.

The first clutches were laid in mid-February with a sharp rise in early March. The last clutches were laid in mid-July. In March and April there was no marked peak and clutches were started at a fairly uniform rate. The peak in early May probably indicates the majority of second broods while the smaller peak in early June suggests third broods.

Annual Differences in the Timing of Breeding

It was possible to compare the timing of breeding in 1979 and 1980. The percentage of clutches started in each fifteen-day period in each of the two years is shown in Figure 2. Fifteen rather than five-day periods have been used because of the relatively small sample (128 in 1979 and 68 in 1980). The peak in early April 1979 resulted from many repeat clutches after a mass mortality of broods following two days of continuous rain on 31st March-1st April. The first peak in 1980 was reached in early April. The weather in March had

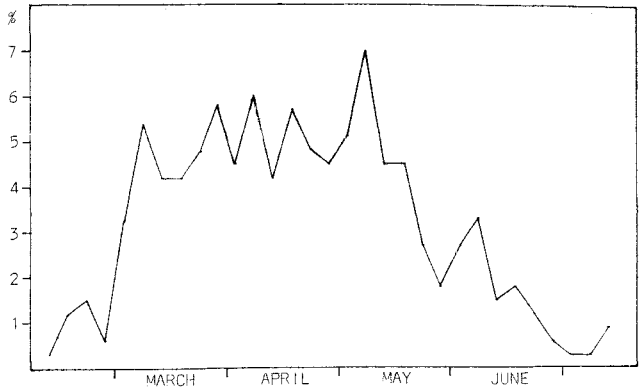

Fig.1. The breeding season of the Sardinian Warbler, as shown by the percentage total clutches started in each five-day period throughout the season.

been still relatively cold and there was a heavy hailstorm on 16th. Many more clutches were started in May and June. Numbers were too small to compare air temperatures to rate of egg laying, especially in the early part of the breeding season. However, average air temperatures in February-March 1979 were overall higher than the corresponding period in 1980. The maximum temperature reached in February 1979 was of 22.9°C on 11th, while that of 1980 was of 19.2°C on 7th. The February means were of 15.9°C and 15.5°C in 1979 and 1980 respectively. March 1980 was also colder than 1979 with mean air temperatures of 17.1°C and 18.1°C respectively.

Timing of Breeding and Number of Broods Reared

Since the population density of the Sardinian Warbler is high, it is almost impossible, except in a very few cases, to follow an individual pair's nesting cycle unless the birds are individually marked. In 1979 an effort was made to follow as completely as possible the nesting attempts of a few pairs found in areas of relatively low densities. These were

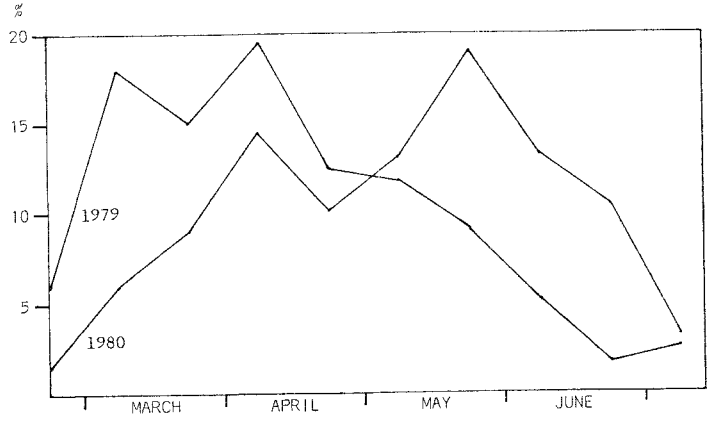

Fig.2. Percentage total clutches started in each fifteen-day period in 1979 and 1980.

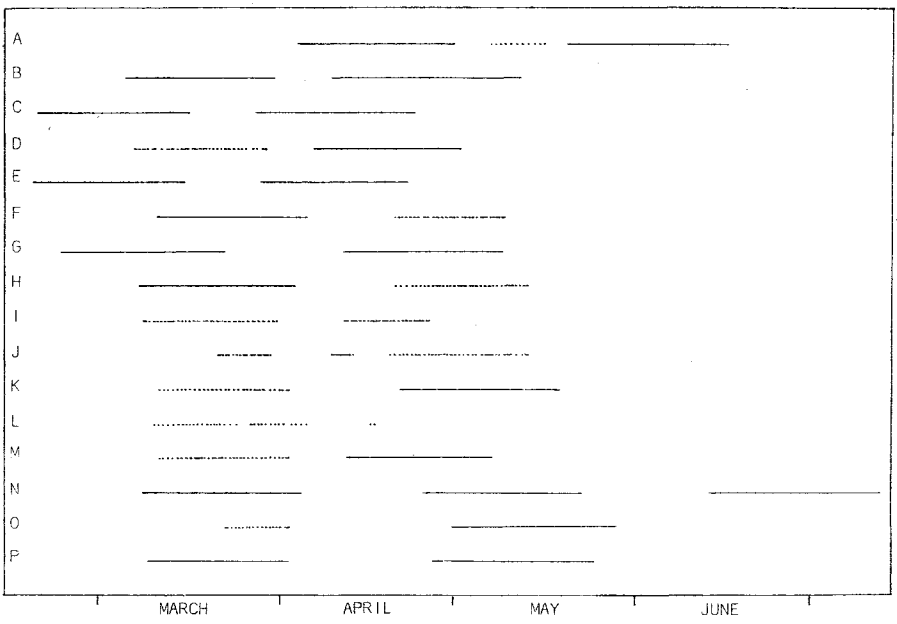

Fig.3. Breeding schedules of 16 pairs of Sardinian Warblers in 1979. Each row represents a single pair with lines showing timings of nests (solid lines successful attempts; dotted lines failures). Some early finishing pairs could have had another attempt which was undetected.

mainly situated in rocky valleys and at the plantation of tamarisk and acacia at Xemxija. The nesting attempts of sixteen pairs thus followed are shown in Figure 3. The overall span of the nesting season was of 146 days from the first egg laid on 17th February to the last young fledged on 12th July. It seems likely that pairs finishing early (e.g. pairs C, D and E) had another attempt which was undetected. This is supported by the fact that no adult birds have been found moulting before early June and less than 20% started before late June (Gauci & Sultana 1979). After their third failed attempt (the predator having been suspected as being human), pair L successfully raised a brood in a nearby vineyard in May. Starting dates ranged from 17th February to 3rd April, with a mean date of 8th March and a 95% confidence range from 2nd to 14th March.

Though from the small sample of 16 shown in Figure 3 only one pair definitely raised three genuine broods, it seems highly probable that birds starting early (i.e. before mid-March) are capable of having three broods, unless at least one attempt fails.

Interval Between Broods

The interval between fledging of the first brood and the laying of the second varied between 7 and 25 days (mean 16 days ± 6.3, n=10). The young usually remain dependent on the parents for ca. 2-3 weeks. It is thus possible that the pair re-nesting after only 7 days might have lost the young soon after fledging. The interval between the loss of a clutch or brood and subsequent re-laying was shorter, ranging from 2 to 28 days (mean 10.8 days ± 7.3, n=10).

Nest-building and Egg-laying

Nest building was recorded from the end of the first week in February onwards. There were a few instances where the exact time to build the nest, undertaken by both sexes, was recorded accurately. From the material available, most nests seemed to have been built in 4-7 days, but there was one instance where it took at least 15 days. The time taken ap-

peared to vary little throughout the breeding season. The interval between the completion of the nest and the laying of the first egg varied greatly, and ranged from 1 to 18 days. The period was longest in the early part of the breeding season. In instances of replacement nests, laying often started before completion of the nest which was often very flimsy.

Laying took place at approximately 24-hour intervals. Eggs were usually laid in the first two hours after dawn.

Clutch Size

Following Newton (1964), cards were considered for analysis of clutch size if they contained the following information :

(a) if nests were visited daily over the end of the laying period and beginning of the incubation period;

(b) if two or more visits more than 24 hours apart showed the same number of eggs; and

(c) if the clutch was visited only once during incubation, but a sufficient number of days after recording an incomplete clutch to be certain that a full clutch was present.

No partial egg losses have been recorded during incubation and the few nests which lost eggs during laying were invariably deserted. 235 cards were thus eligible for analysis. The mean clutch size was 3.77 ± 0.26. Clutch size varied from 1 to 5. 63.8% of all clutches contained 4 eggs, with 24.2% and 8.5% containing 3 and 5 eggs respectively. Only 7 nests had clutches of two and 1 nest of one egg. Almost all clutches at the extreme ends of the breeding season were of three eggs. The mean clutch size throughout the breeding season is shown in Figure 4. Each month was divided into two equal halves and the mean was calculated from clutches started in each period. Clutch size remains fairly constant between March and May with a slight peak in the latter half of May. This peak is gradually reached after a slight initial drop in the first half of April and is probably associated with increasing day-length giving the adult birds more time to feed the young. The steep decrease that follows can be attributed to a rapidly decreasing food supply as the Maltese coutryside dries up under the scorching sun. The fact that runts are more commonly recorded during this latter period may also be indicative of a short supply of food.

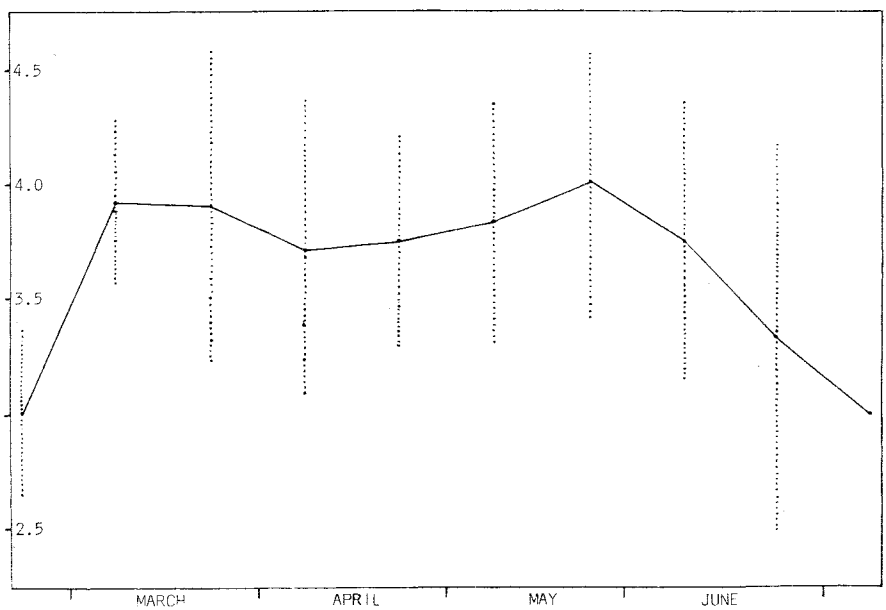

Fig.4. The mean clutch size of Sardinian Warblers throughout the breeding season. Dotted bars show 95% confidence limits.

Brood Size

The overall mean brood size at an age of 6-8 days was 3.22 ± 0.94. Most young lost appear to have died soon after hatching; these were frequently removed from nests. Well grown young were also very occasionally found dead in nests after the rest of the brood had fledged. These were usually runts. The pattern of brood size followed that of clutch size, with peaks in mid-March and mid-May and a steep decline from early June through to July.

Incubation and Fledging Periods

The incubation period was known exactly for only 18 clutches (Table 1). It varied from 12 to 15 days with a mean of 13.28 ± 1.53 and a 95% confidence range from 12.93 to 13.63 days.

TABLE 1 : Incubation period of Sardinian Warblers.

Incubation period (days) :	12	13	14	15
Number of instances :	2	11	3	2

The two clutches taking 15 days to hatch were started on 25th February and 13th March.

The fledging period could not be calculated accurately but in most cases appeared to be 12-13 days, though if disturbed, fledglings can 'explode' out of the nest at 9 days. Four fledglings, aged 7 days, which were removed from the nest and placed in a nearby *Tamarix* tree after the nest had been attacked by a snake *Coluber viridiflavus*, managed to survive and were later retrapped when free flying.

Nesting Success

The analysis of nesting success largely follows Newton (1964), who discussed possible sources of bias. Nests found during building, laying and incubation have thus been included and young were presumed to have fledged successfully if the nest was last visited at age 9 days. The overall success is given in Table 2.

TABLE 2 : The overall breeding success of Sardinian Warblers.

Number of clutches	211
Number of eggs laid	792
Number of eggs haiched	605
Number of young fledged	350
Number of young fledged per nest	1.66
Hatching success %	76.39
Young fledged as % of hatched	57.85
Young fledged as % of eggs laid	44.19

The cause of failure of nests is shown in Table 3. Most cases of predation have been attributed to the Western Whip Snake *Coluber viridiflavus*. In such instances the young vanished without the nest being disturbed, though occasionally it was found holed from underneath. Cases of desertion may include instances where all the eggs in a clutch were infertile. Some cases of desertion were thought to be the result of frequent human disturbance as a result of building nests near paths. Failures related to weather were either caused by prolonged periods of continuous rain when all birds in a brood died or, more commonly, to nests being blown off by strong winds. Clutches failing as a result of human activity were trampled, cleared or burnt with the surrounding vegetation; brood failures resulted almost invariably from robbing. The broods dying from unknown causes could have resulted from the adults dying, though in at least one case it was suspected that the young had been fed larvae from a field which had just been treated with an unknown brand of insecticide.

TABLE 3 : Causes of Failure of Nests (%) of Sardinian Warblers.

	Clutch	Brood	Total %
Predation	4.3	59.5	40
Desertion	47.8	-	16.9
Weather	15.2	20.2	18.5
Human Activity	28.3	15.5	20
Adult death	2.2	1.2	1.5
Eggs broken	2.2	-	0.8
Broods dying through unknown cases	-	3.6	2.3
Number of observations	46	84	130

Post-Juvenile Dispersal

Juveniles are accompanied by their parents for 2-3 weeks after fledging. Retraps show that some birds stay in the immediate vicinity of the nest for a considerably longer period, one bird from a last brood being recorded in the same area four months later. Whole broods were retrapped together up to five weeks after ringing. Two birds from separate second broods were retrapped about one kilometre away three months later and another one was found 10 kilometres away eight months later. Three birds from first broods were subsequently found breeding at their birth place.

Attendance at Nest

There were 310 instances where the sex of the incubating bird was recorded. In 77% of the instances the female was found incubating. It thus appears that females do the major part of the incubation. Males trapped for ringing showed brood patches vascularised to a different extent and the time spent incubating by males probably varies from pair to pair. Of 184 instances where a bird was found brooding, 70% were of females. Males were often found in attendance when eggs were hatching.

Reaction of Birds to Human Presence

Birds disturbed from a nest during building generally uttered a vigorous alarm call and frequently indulged in the 'broken wing' distraction display. Males were sometimes found visiting eggs during laying; when flushed these usually left silently. Both sexes left the nest silently when disturbed during incubation and would dive into cover within a few feet. Males often utter a snatch of song after reaching cover and females utter an alarm call. Males also sing on human approach to a nest with a female incubating. Both birds, when flushed during brooding, would often indulge in prolonged distraction displays, while with well-grown or fledged young human presence is greeted with incessant harsh alarm calls.

Nest Sites

Nest sites depended on the vegetation found in the habitat frequented. As can be seen from Table 4, over 60% of the nests were within 60 cm. of the ground. Most nests built at a height of over 1 m. were located either in fruit trees or in plantations where no undergrowth was present. The birds nesting in such situations have probably adapted themselves to nest at these heights. However, where adequate low vegetation is present, it is invariably preferred. In areas where *Cupularia (Inula) viscosa* is present, it is the preferred plant and about 30% of all nests have been found in this shrub. Nests have been recorded from at least another forty types of plants, including grass tufts, thistles, asparagus, snapdragon and fennel.(A list of plants used appears in Appendix 1). One nest was built in barbed wire and another two in dead twigs lying on the ground.

TABLE 4 : Height above ground of Sardinian Warbler nests.

Height of Nest (cm)	Number	Percent
1- 30	86	26.4
31- 60	122	37.4
61- 90	52	16.0
91-120	25	7.7
121-150	15	4.6
151-180	11	3.4
181-210	5	1.5
211-240	2	0.6
241-270	1	0.3
271-300	2	0.6
301-330	4	1.2
331-360	1	0.3
	326	100

Relations with other Species

Many of the habitats where Sardinian Warblers breed, particularly maquis and garrigue are shared with the Spectacled Warbler *Sylvia conspicillata* and the Corn Bunting *Calandra miliaria* and recently also with the Fan-tailed Warbler *Cisticola juncidis*. No interactions seem to exist between these species and nests are often as close 2 m. and sometimes less.

However, Fan-tailed Warblers have been seen occasionally chasing Sardinian Warblers when these venture too close to their nest.

Discussion

The breeding season of the Sardinian Warbler in Malta extends over a period of almost six months, from February to July, but with a peak in March-May. This latter period is associated with food supply since, from June, the Maltese countryside becomes parched. It probably coincides with a time when defoliating caterpillars and other insects which are fed to the young are most abundant. The fact that the clutch size decreases sharply after mid-May is also a result of a decrease in food supply. From the few direct observations it seems that birds laying in February and early March are capable of raising three genuine broods, though it appears that most pairs raise only two broods. Birds having nests repeatedly predated have been found to be capable of laying four times.

The mean clutch size for the Sardinian Warbler is lower than in other *Sylvia* warblers studied in England, e.g. Dartford Warbler *Sylvia undata* (Bibby 1979) and Blackcap *Sylvia atricapilla*, Garden Warbler *Sylvia borin*, Whitethroat *Sylvia communis* and Lesser Whitethroat *Sylvia curruca* (Mason 1976). The overall nesting success, calculated as the number of young fledged as percentage of eggs laid, is also markedly lower. This is despite a comparable hatching success rate and a lower predation rate than the other *Sylvia* warblers and results from a lower mean clutch size. It is probably offset by two factors : (a) more broods on average in a season and (b) lower post-fledging mortality, the local population of Sardinian Warblers being resident, winters are relatively mild, and predators (both mammalian and avian) being scarce.

The estimated proportion of eggs failing to hatch as a result of infertility is rather high at 11%. This may possibly be due to inbreeding. A similar high rate of infertility in Dartford Warbler eggs has also been found in Britain (Mason 1976 and Bibby 1979) and both authors postulated that besides inbreeding, it could be a result of this warbler being at the northern limit of its range, where populations are small and isolated.

Despott (1916) stated that the eggs in a clutch vary from five to six. It is difficult to determine whether Despott was mistaken or not in giving this figure. At the time when his work was published the Sardinian Warbler was still an irregular visitor to the Maltese Islands and in the process of establishing itself. Bannerman and Vella-Gaffiero (1976) wrote that eggs are laid in early April and went on to state that birds breeding in inhabited areas hatch a family up to two weeks before those in open country. The present study shows this statement to be unfounded. On the contrary, the earliest nests were found at Ta' Qali, while birds at Buskett, a much more sheltered area, usually laid up to four weeks later.

Acknowledgements

We are grateful to those members, who, besides the authors, submitted nest record cards to the scheme. Particular thanks are due to S. Balzan, V. Cilia, R. Galea and M.V. Gauci, who often helped in the systematic search for nests at Ta' Qali. Mr. V. D'Agata kindly made available February - June temperatures for 1979 and 1980. Mr. E. Lanfranco was very helpful in the identification of some of the plants.

Summary

The breeding season of the Sardinian Warbler extends from February to July, with a pronounced peak in March-May. Clutches of four were the most common, followed by clutches of 3 and 5 respectively. Clutches of one and two have also been occasionally recorded. The mean clutch size is of 3.77 eggs but is markedly lower at the two ends of the breeding season. Nest building, incubation, brooding and feeding of young are shared by both sexes, with the female taking the greater share in incubation and brooding. The overall nesting success, 44.2%, was very low compared with other *Sylvia* warblers in Britain. Partial failures, as a result of eggs failing to hatch, are common. The Sardinian Warbler has adapted itself to nest in a wide variety of situations, but small shrubs or bushes are always preferred for nesting when these are available. Over 60% of nests found have been situated within 60 cm. of the ground.

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APPENDIX 1 : List of plants used by the Sardinian Warbler.

Pinus halepensis; Cupressus sempervirens; Ulmus sp.; Ficus carica; Salsola sp.; Laurus nobilis; Rubus ulmifolius; Eriobotrya japonica; Crataegus spp.; Cyodonia oblonga; Prunus spp Coratonia siliqua; Acacia cyanophylla; Psoralea bituminosa; Euphorbia dendroides;Citrus spp Pistacia spp.; Rhamnus spp.; Vitis vinifera; Tamarix spp.; Punica granatum; Hedera helix; Foeniculum vulgare; Olea europaea; Borago officinalis; Vitex agnus-castus; Prasium majus; Teucrium fruticans; Antirrhinum spp.; Lonicera implexa; Inula crithmoides; Cupularia(Inula) viscoa; Galactites tomentosa; Carduus pycnocephalus; Carlina corymbosa; Senecio bicolor; Asparagus aphyllus; Juncus acutus; Arundo donax; Capparis spinosa.

APPENDIX 2 : Measurements and colour of eggs of the Sardinian Warbler.

The measurements of eggs (to the nearest 0.1 mm) were taken from 30 infertile/deserted eggs

Mean : 17.7 X 13.3 mm. Range : 16.0-19.3 X 11.9-14.2 mm.

One abnormal egg measured 21.9 X 12.4 mm. This egg was infertile. The brood had just been taken by a snake *Coluber viridiflavus* which was still on the nest when found. In the nest there were two fresh droppings of young pulli.

The colour of the eggs as recorded on the nest record cards was as follows :

Ground Colour	No.	%
Orange-white (1)	86	37.0
Greenish/clayish-white (2)	83	35.8
Brownish/creamy-white (3)	26	11.2
White (pure or very slightly tinted) (4)	22	9.5
Stone-white (5)	15	6.5

(1) Ground colour variable in intensity; may be pale, warm or quite dark. Generally speckled with orange-brown, reddish-brown or chocolate-brown.
(2) Usually speckled with olive-brown or dull brown.
(3) Almost invariably speckled with chocolate-brown.
(4) Variable but usually blotched and/or marbled, rather than speckled. Colours may be pale olive, sepia, black, dark chocolate-brown and orange; usually either a mixture of the first two or the last three.
(5) Generally speckled or blotched with olive-brown.

The speckling is usually dense and often forms a concentrated zone at the thicker end on all types of eggs.

Sexual Dimorphism of Cory's Shearwater

DIETRICH RISTOW & MICHAEL WINK

Introduction

The sexes of the Procellariidae are similar in plumage, but the male is usually larger than the female (Cramp & Simmons 1977). The authors have tried to find biometrical criteria to distinguish the sexes of the Mediterranean race of Cory's Shearwater *Calonectris d. diomedea (Scopoli 1769)*. Additionally its flight call is described and its sexual difference, which was supposed to exist (Lockley 1952), demonstrated.

Material and Methods

To study the breeding biology of Cory's Shearwater the authors caught about 240 adult birds at a breeding colony in the Aegean Sea between 1969 and 1980 (Wink et al. 1979, Wink & Ristow 1979, Ristow et al. 1981, Wink et al. 1981). From the live birds the following measurements were taken :- maximum wing length; tail length; distance from the point where the central tail feathers emerge from the skin to the tip of the longest feather; tarsal length, tarsal height and width; head and bill measurements according to Fig. 1; weight, measured with a calibrated spring balance, accuracy ± 5 g. Accuracy of wing and tail measurements ± 1 mm; bill and tarsal data ± 0.1 mm. Flight calls were recorded with a portable tape recorder (Magnetophon 300 TA, Telefunken and M 534 microphone UHER).

Results and Discussion

If both partners of a pair of Cory's Shearwater are seen together at their nest entrance, a significant difference in size is usually evident. Behavioural observations and obduction revealed that the larger bird was the male, the smaller the female. This is in accordance with the data for the atlantic race *C.d. borealis* (Zino 1971) and other shearwaters (Cramp & Simmons 1977).

In 1978, 38 pairs were controlled during the incubation period and the sexes were readily distinguished by their size. But the overall biometrical data for both sexes display a significant overlap, a circumstance which makes it difficult to sex a single shearwater which is not accompanied by its mate. In order to obtain a simple means for sexing the species, the authors combined data of bill length with bill height by multiplication (Fig.2). The histogram now allows a clearcut distinction between the sexes. There is still a small overlap in the range of 820 to 840 mm x mm, but only 5% of the population studied fell in this group and in this case additional criteria for sexing have to be applied. Although the atlantic race *C.d. borealis* is bigger and weighs about twice as much (Zino 1971), it seems probable that a similar method to distinguish the sexes in the field is applicable for this subspecies, too.

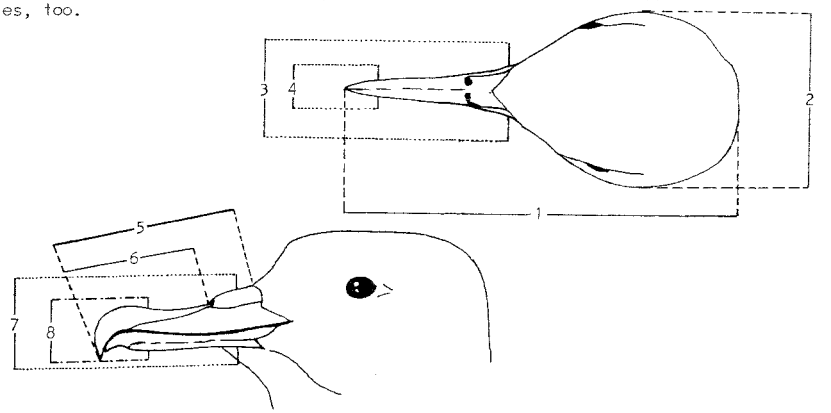

Fig. 1. Schematic illustration of head and bill measurements on *Calonectris d. diomedea*.

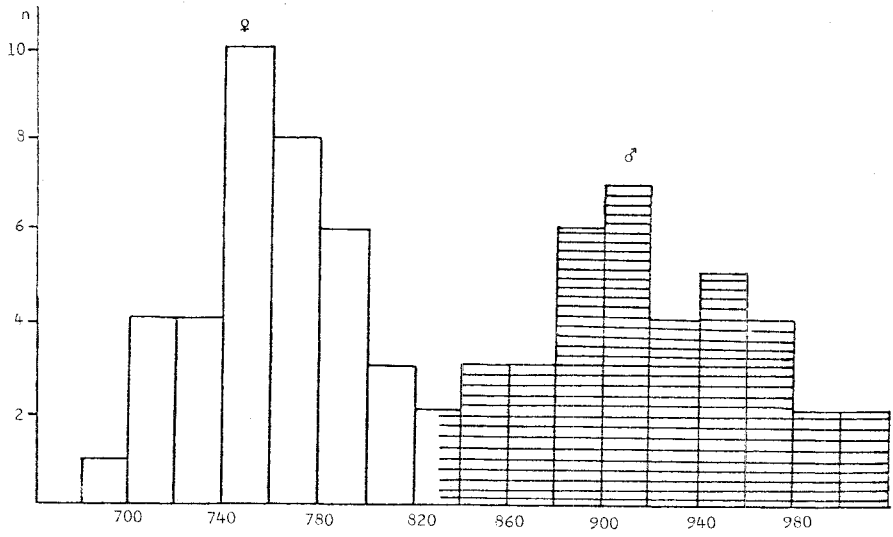

Fig. 2. Histogram of the combination bill length x bill height (no.5 x No.7 in Fig.1). Data from 76 birds of 38 pairs which had been unequivocally sexed.

Using the bill criteria only, the authors have arranged all the biometrical measurements according to sex (Table 1). As expected, the t-test reveals a significant difference between the data for male and female.

In the course of this study over a dozen birds were measured repeatedly in subsequent years (up to 5 years). From these biometrical data the authors cannot find an age-dependent change in the bird's size and the other biometrical parameters, so far.

Data on the birds' weight show a high variation, since a bird may carry up to 100 g of food in its stomach and probably can deposit at least 50 g in fat. A number of shearwaters were reweighed at several occasions. If the lowest weight (during the feeding period of the young) be taken, which it is assumed was the net weight, the data for the last row in Table 1 was obtained. During 1978 the population was studied during the time of incubation, with weighing the shearwaters at the beginning and the end of an incubation spell (Table 2). The value at the end of incubation is nearly identical with that in Table 1, for males as well as females. Weight loss during an average incubation spell is more than 20% (Table 2). The maximum incubation spell observed was 14 days for a male and 16 days for a female with a weight loss from 685 to 545 g and 610 to 390 g, respectively.

The data on female weight in Tables 1 & 2 include only birds after egg laying. They are of course heavier just before laying. To include egg weight (egg length 67.3 ± 2.83 mm, breadth 45.53 ± 0.83 mm; n = 40) the authors have a weight of 76.78 ± 2.99 g for 14 eggs on the first of June, i.e. about five days after egg laying. This value has to be corrected for the daily weight loss of about 0.22 g during incubation. A mean weight of 78 g at laying can be assumed. Therefore, the weight of a female just before laying will be at least about 520 g. The egg will account for 15% of the female weight then (or 17.7% of the female net weight). In *C.d. borealis* the respective value is significantly lower and accounts for 11% only, but it is similar in the genus Puffinus (for details see Jouanin et al. 1979, Harris 1966).

In Cramp & Simmons (1977) it is stated that "at least some calls of ♂ and ♀ are different". Using the above biometric method the authors distinguished male and female and subsequently their flight calls. The flight call of the male is a sobbing wail "ia-go-oh-go-eh" of which there is the allegation that it sounds like a crying human baby. The call is illustrated in the sonagrams a and b of Fig. 3 which were derived from two different

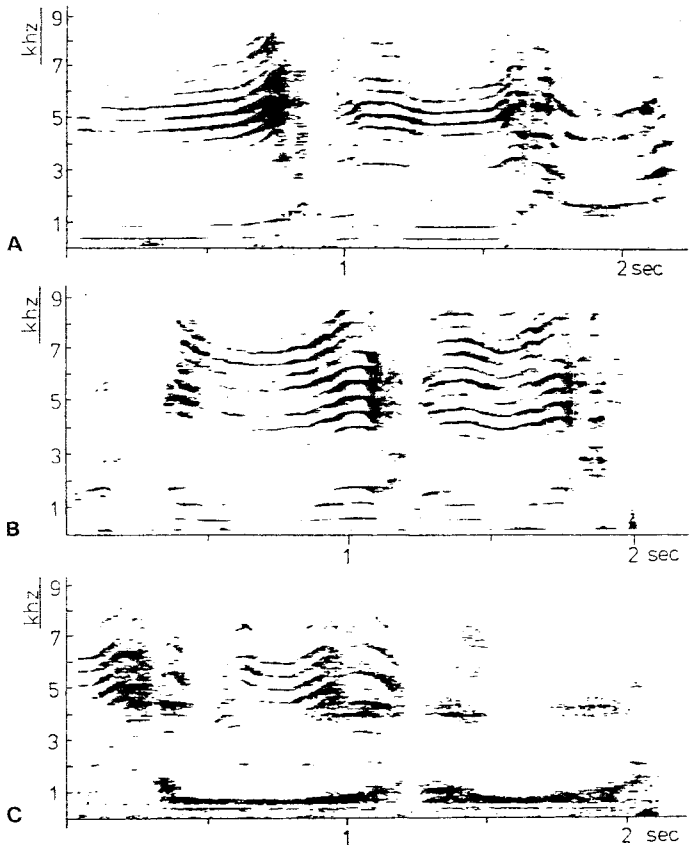

Fig. 3. Sonagrams of the flight calls of *Calonectris d. diomedea*. a and b : flight call of male; c : flight call of female.

males respectively. The duration of an element is about 0.6 s and its maximum intensity lies at about 4 and 8 kHz. The flight call of the female is rougher and darker and can be described as a rasping "ia-ia-ia". The respective sonagram c in Fig. 3 shows elements which are somewhat similar with those of the males. They have a maximum between 4 and 6.5 kHz and are a bit shorter, only 0.45 s. The main difference is a contribution between 0.5 and 1.5 kHz which gives the female's voice the described dark rasping element.

The sonagrams of Fig. 3 differ in their frequencies and composition from the only sonagram which has been published of a *C.d. borealis* flight call (J. Dufour in Cramp & Simmons 1977), indicating that the larger resonance cavities of that race produce the lower frequencies in the flight call.

Acknowledgements

For their help and support we would like to thank our German and Greek friends. We are indebted to Dr. Schröder and his co-workers(Physikalisch-Technische Bundesanstalt, Braunschweig) for recording the sonagrams.

Summary

Biometrical data of *Calonectris diomedea diomedea* from the Aegean Sea are given. Sexes may be distinguished by their size, the male being significantly larger. When the data of

TABLE 1 : Biometrics of sexual dimorphism of *Calonectris d. diomedea*. Differences between sexes were tested with the t-test. For illustrations of head and bill measurements see Fig. 1.

parameter	♂ $\bar{x}$ ± s.d.	n	♀ $\bar{x}$ ± s.d.	n	p
wing length	341.8 7.6	65	333.1 8.4	62	< 0.001
tail length	122.7 5.3	66	120.7 4.5	60	< 0.02
tarsal length	53.4 1.7	35	52.0 1.2	38	< 0.01
tarsal breadth	4.2 0.3	38	4.0 0.2	42	< 0.005
tarsal height	6.4 0.3	38	6.1 0.3	42	< 0.001
head length (1)	105.9 1.2	38	101.2 2.8	36	< 0.001
head breadth (2)	34.5 1.6	38	32.7 1.4	35	< 0.001
bill width (3)	19.7 0.9	23	19.1 0.6	21	< 0.005
bill width (4)	6.7 0.4	63	6.1 0.3	60	< 0.001
bill length (5)	49.5 1.4	40	46.2 1.2	39	< 0.001
bill length (6)	38.6 1.2	41	36.5 0.9	43	< 0.001
bill height (7)	18.6 0.8	64	16.6 0.5	55	< 0.001
bill height (8)	12.9 0.7	65	11.6 0.4	58	< 0.001
uncorrected weight	585.8 58.7	113	514.1 64.0	98	< 0.001
net weight	519.2 32.3	24	443.6 28.1	25	< 0.001

TABLE 2 : Changes in weight of *Calonectris d. diomedea* during incubation.

	weight/g at beginning of incubation spell $\bar{x}$ ± s.d.	n	weight/g at end of incubation spell $\bar{x}$ ± s.d.	n	daily weight loss/g $\bar{x}$ ± s.d.	n	duration of incubation spell/d $\bar{x}$ ± s.d.	n
♂	665 ± 33	11	524 ± 28	10	14.8 ± 2.02	12	8.07 ± 2.48	27
♀	579 ± 32	15	440 ± 14	8	13.2 ± 2.16	10	9.15 ± 3.36	20

bill length and of bill height are combined by multiplication, the range of the male data and of the female data are quite distinct. With this criterium it is possible to sex *C.d. diomedea* in the field. Data on the weight of adult shearwaters and its variation within the incubation period are given. Weight loss during an average 8-9 incubation spell is more than 20%. A freshly laid egg weighs 78 g and accounts for 17.7% of the female net weight which is supposed to be 520 g just prior to egg laying. Flight calls of male and female are described and documented by sonagrams. Both calls can be easily distinguished in the field.

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Autumn Migration of the Honey Buzzard through Malta in Relation to Weather

M. A. THAKE

The general features of raptor migration through Malta were elucidated by Beaman and Galea (1974) as a result of a five year study. A similar study was undertaken in the autumns of 1974 - 1978, the results of which are here compared with those of Beaman and Galea. The interpretations of raptor migration through the Maltese islands offered by DeLucca (1969) and Beaman and Galea (1974) are examined with reference to Honey Buzzard *Pernis apivorus* and a reinterpretation of Honey Buzzard migration through the islands is offered.

METHODS

Most of the observations employed in this study were made at Buskett from the principal watch point used by Beaman and Galea (1974). On several occasions observations were carried out by the author elsewhere in the islands while E. Curmi generously substituted me at Buskett.

Details of the observation methods were published elsewhere (Thake 1977, 1980). Data recorded in the field included flock size, height and direction of flight, time of sighting as well as details of behaviour. Meteorological data were recorded at hourly intervals during the watch. Further meteorological data were taken from the records of RAF Qrendi and Luqa records published in 'The Times', while regional weather maps were supplied by the Deutscher Wetterdienst.

Observations were most extensive in 1976 when watches were maintained on most days from the second week of August to the third week of November. Watches in August and September lasted from 1000 to 1800 CET. About half of the remaining watches began at 1500 and ended at 1700 to 1800 CET. Observations in other years were less extensive, covering most of the period from late August to early October.

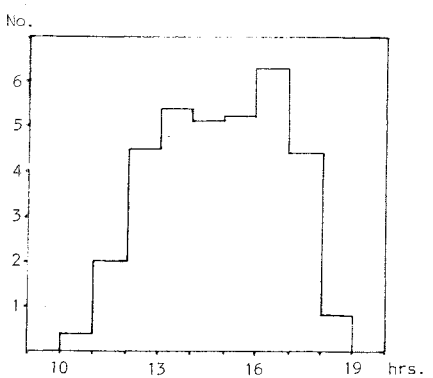

Fig.1. Variation of Honey Buzzard sightings with time of day. Sightings over the period 15-30/9 in 1976-78 were grouped in hourly intervals and the mean calculated over the watches during which that hourly interval was covered. The ordinates thus represent the mean number of Honey Buzzards sighted per hour during the interval in question.

RESULTS

Time of day

There was considerable day to day variation in the time of day when sightings were made. The average distribution of sightings is illustrated in Figure 1.

This histogram differs from that reported by Beaman and Galea (1964). Their afternoon observations started somewhat later than those in the present study and it seems likely that these observers missed many early birds.

A few wounded individuals were sighted repeatedly throughout the day. On a few rare occasuons a flock was sighted again an hour or more later. Such double sightings were more frequent and made counting difficult after 1600 hrs. Birds tended to linger in the vicinity of Buskett for increasingly long periods as the afternoon progressed. The earliest sightings were made on days when the gradient wind was a light north easterly. This effect was not very marked however.

Direction of flight

Scatter diagrams of headings of flocks (one or more) of Honey Buzzards, grouped in hourly inervals, are illustrated in Figure 2. The headings exhibit

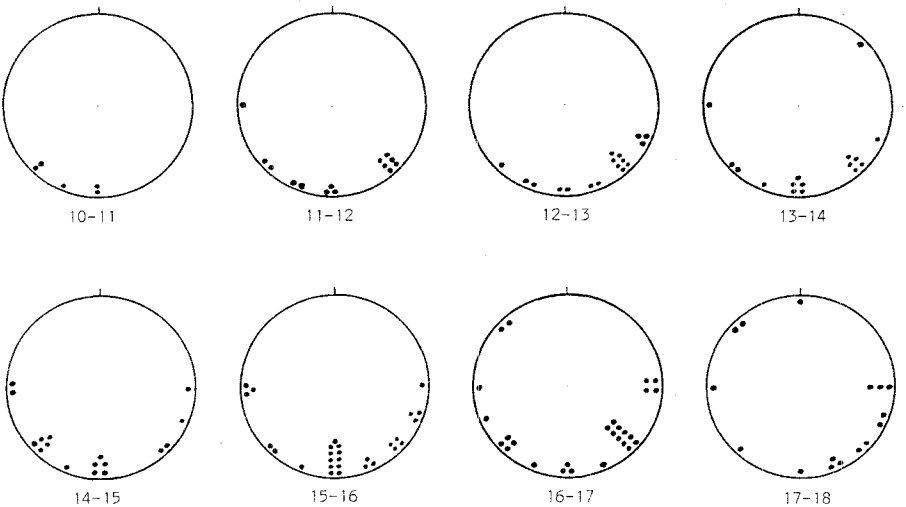

Fig.2. Variation of the dispersion of headings of Honey Buzzards with time of day. The headings of birds which passed within 100m were estimated ($\pm$ 10°) by reference to known compass points. All estimates were made by the author. Sightings were grouped in hourly intervals and separate scatter diagrams plotted. The direction of geographical north is marked above each diagram.

clear directionality until approximately 1700 hrs, after which time the direction of flight does not appear to be related to the direction of migration. The obvious interpretation is that Honey Buzzards become reluctant to continue migrating and start looking for a suitable roost. Most birds seen after 1700 hrs seemed to be attempting to roost (Beaman and Galea 1974, pers. obs.). Certain weather conditions may induce birds to attempt to roost earlier than usual (Thake 1977).

Wind

Previous studies of Honey Buzzard migration through Malta have concentrated on the effects of wind. DeLucca (1969) stated that most diurnal migrants are sighted in westerlies, an assertion with which Sultana et al. (1975) appear to agree. Galea (1969) noted most Honey Buzzards in south westerly winds. Beaman and Galea (1974) reported an association between larger raptor passages in autumn and southerly winds. Thake (1978) found a significant positive correlation between strength of the southerly component of wind strength and the number of Honey Buzzards sighted. However most larger passages have been reported in light winds, when sea breezes dominate the islands. A short description of sea breezes at Buskett is given below. The account is drawn largely from Lamb (1955), amplified by personal observations and examination of weather maps.

Sea breezes dominate the circulation on about one third of the days in September. On a few other days a trough may develop over a small part of the island or may be present for only a short time. Full sea breeze development does not usually occur with gradient windspeeds exceeding 10 knots. Troughs in the airflow form when the gradient wind is too strong for a thermal low to develop. Sea breezes generally start at approximately 0800 hrs and cease at around 1700 to 1800 hrs in September (Lamb 1955). Sea breezes at Buskett are probably modified slightly by anabatic breezes. Most sea breezes at Buskett are observed to blow between west south west and south south east, and are weaker than those on Dingli cliffs. Typically maximum strength is reached about 1200 - 1400 CET, and is usually below 10 knots. Wind direction varies most during the day when the gradient wind is north easterly. Under such conditions the thermal low and convergence line lie close to Buskett, and small movements of either can result in marked changes of wind direction and speed. Such conditions also result in the greatest amount of convective activity over Buskett. This occurs less frequently when the gradient wind is south easterly. At such times the

centre of the thermal low generally lies further north, giving breezes between south south west and south east which can attain strengths of up to 15 knots when gradient wind and sea breeze partially reinforce one another. Gradient winds from the north westerly and south westerly quadrants result in sea breezes whose direction varies little during the day at Buskett. The centre of cyclonic circulation or trough line can usually be located by the associated stationary patch of cumulus cloud.

Sea breeze systems are limited in both vertical and horizontal extent, and cannot be invoked as evidence of any proposed vertical movements of birds into and out of visible range. Beaman and Galea (1974) proposed that large passages of raptors occur when southerly winds force high flying birds to fly at lower levels where they can be seen. This hypothesis can be tested quite readily by examining the correlation between numbers sighted at Buskett and the strength of the southerly component of the upper winds. According to the hypothesis, there should be a significant positive correlation with the strength of the southerly component of the upper winds. Data obtained between 30/8 and 10/10/76 were examined in conjunction with Qrendi radiosonde data on wind direction and speed at 850 mb (approximately 1500 m) at 1800 CET. The number of Honey Buzzards sighted was not significantly correlated with the strength of the southerly component of the winds at this level ($r = -.1613$; $P > .1$). No significant correlations were found with winds at 3000 m and 5500 m. These results do not support the hypothesis and Beaman and Galea do not report any such correlations in support of their hypothesis.

Honey Buzzard sightings were not significantly correlated with the westerly component of the surface wind at 1200 and 1800 CET (Qrendi meteorological data). This result contradicts DeLucca's (1969) assertion that most raptors occur in westerlies.

The tendency for most migration to occur when wind strength in the early morning is low, was shown statistically by Thake (1977). This was interpreted as being due to most Honey Buzzards deciding to migrate only if wind strength in the early morning is low.

Other weather variables

Honey Buzzard daily totals (15 - 30 September 1976 and 1978) were not significantly correlated with visibility. If high totals of Honey Buzzard were due to convergence on the islands over a wide area, the number sighted ought to be significantly correlated with visibility. This negative result suggests that large scale convergence on the Maltese islands is not responsible for the high totals. The possibility of convergence on a small scale and concentration within the islands is not affected by this negative result.

Overcast conditions are known to cause falls in a wide variety of bird species, especially if accompanied by rain (Richardson 1978). In the present study only one large passage was recorded under a totally overcast sky (26/9/77). While this particular observation might be attributable to a fall situation, this is not the case with the other large passages recorded. Honey Buzzard sightings were not significantly correlated with average cloud cover. Numbers were not significantly correlated with the amount of convection cloud. This suggests that the observed variation of numbers is not due to variation of the availability of thermals.

Rain seemed to induce Honey Buzzards to fly lower and attempt to roost. Data were however too few to test statistically.

DISCUSSION

DeLucca's assertion (1969) that most raptors are sighted in westerlies is not supported by the results of Beaman and Galea (1974) and those presented here. The fact that most sightings occur in light winds also contradicts this hypothesis. There appear to be no grounds for believing that most Honey Buzzards appear in these islands when drifted eastwards by westerly winds.

Beaman and Galea (1974) hypothesised that contrary winds induce large totals by forcing birds to fly at lower levels where they can be seen. This is contradicted by the available evidence. Thus Honey Buzzard sightings are not correlated with the southerly component of the upper winds, despite a significant positive correlation with the southerly component at low level. It is difficult to see how birds might be induced to fly lower by contrary winds below them. The observed variation of sightings throughout a watch differed markedly from that reported by Beaman and Galea (1974) but was quite similar to that described earlier by one of the above authors (Galea 1969). The author's data (Figure 1), showing many sightings when thermals are at peak development, does not support the interpretation that most birds are seen when thermals start to weaken in the late afternoon. Birds sighted in the early afternoon were flying higher but were nevertheless readily visible to the unaided eye when overhead. The conclusions of another study (Evans and

Lathbury 1973), which attributed variation of numbers to movements into and out of visible range, have since been disputed (Finlayson et al 1976).

It might be argued that convergence on the islands occurs in contrary winds, resulting in the observed correlation with southerly winds at low level. As has been explained, the southerly winds under which most Honey Buzzards are sighted are mostly sea breezes which do not extend far enough out to sea to result in large scale convergence on the islands. The absence of a significant positive correlation with visibility also suggests that convergence on the islands is unimportant.

Honey Buzzard migration across the Sicilian channel occurs almost exclusively when wind strengths are low. Though other studies (eg Alerstam 1978) have shown a negative correlation with wind strength, much migration has been observed elsewhere in strong tail winds (Porter and Willis 1968, Alerstam 1978). The situations may not be comparable. Most migration in strong tail winds has been observed at narrow crossings where the opposite shore was clearly visible. This is not the case in Malta where visibility is such that the Maltese islands are not usually visible from the south Sicilian coast. The criteria employed by Honey Buzzards deciding to undertake a long sea crossing may well be different from those operating at narrow crossings. Wind determined drift becomes more important and difficult to correct for. In particular the length of the crossing makes some form of persistence forecast necessary (Thake 1977). By opting to migrate under anticyclonic conditions, Honey Buzzards minimise the risk of being caught at sea in bad weather.

The observed correlation of Honey Buzzard numbers with strength of the southerly component of surface wind at 1200 hrs (Thake 1978) can be explained by the following hypothesis. It should be noted that Hobbys *Falco subbuteo* also migrate under anticyclonic conditions yet their numbers are not correlated with contrary winds (Thake 1978). The fact that Honey Buzzards on autumn migration are commoner on the higher ground of west Malta was noted by Beaman and Galea (1974), who pointed out that Buskett totals are much higher than those reported elsewhere. Sultana et al (1975) suggest that this is due to convergence on Buskett, without explaining precisely how or why this occurs. The suggestion that they do so for roosting purposes can only apply to sightings made late in the afternoon. The generally south to south eastward trend of the coastline of west Malta should allow it to act as a leading line, with a proportion of birds prefering to follow the coast rather than commence migration over the sea immediately. The fraction following the trend of the coastline is likely to depend on a number of variables including local weather, time of day, and strength and direction of the observed wind. It is conceivable that a greater proportion will prefer to follow the coast in southerly winds, even if these are in fact only sea breezes. This should result in a greater concentration of birds at the south western end of Malta where Buskett lies. This interpretation explains how an essentially local weather factor like a sea breeze might affect daily totals.

A few published results might be reinterpreted in the light of the present hypothesis. Thus the tendency for totals (and flock size) to be slightly higher when there are scattered thunderstorms (Thake 1976) could be due to a greater reluctance to cross the sea after witnessing a thunderstorm. The skewness of the seasonal histograms might similarly be due to the increasing magnitude of the leading line effect.

More work is required on the effects of gradient wind on the totals observed. There is every reason to expect birds to arrive earlier in northerlies, but at the low wind speeds at which the birds migrate the effect may not be very marked.

Acknowledements

I am grateful to E. Curmi for supplementing my observations on a number of occasions. Thanks are also due to Messrs. Wright and Pace for permission to examine meteorological records.

Summary

Honey Buzzard sightings at Buskett, Malta, in autumn were not significantly correlated with the strength of the southerly component of wind speed at various upper levels. This contradicts the hypothesis that large passages are due to contrary winds at upper levels inducing birds to fly lower, within visible range. The observed absence of correlation between large passages and westerly winds contradicts the hypothesis that large passages occur when birds are drifted eastwards by westerly winds. Most migration occurs during anticyclonic weather. Correlations with wind direction at low level are attributed in part to prevalence of sea breezes under anticyclonic conditions. The higher totals at Buskett are ascribed to a leading line effect of the west coast acting throughout the day, with birds converging on Buskett for roosting purposes in the late afternoon. Presumably, the

leading line effect increases in importance with increasing strength of the southerly (contrary) component of the surface wind, thereby accounting for the observed correlation for the observed correlation with southerlies at low level.

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Sparrows on Crete

D. SUMMERS-SMITH

The Sparrows on Crete are generally considered to belong to the sub-species *italiae* of *Passer domesticus*, though there is some variability in the plumage of the males. Meise* (1934, 1936) on the basis of 7 museum specimens considered that the birds were indistinguishable from *P.d.italiae*, the birds scoring 40, 45, 50(4) and 60, mean 49, in his index (0 = *domesticus*, 50 = *italiae*, 100 = *hispaniolensis*). Johnston (1969) examined 74 museum specimens (48 taken in 1925, 16 in 1942 and 10 in 1960) and found variations in his hybrid index from 3 to 12 (0 = *domesticus*, 17 = *hispaniolensis*), viz. 18 to 71%, with a mean value of 7.3 (43%).

During a visit to Crete from 8th to 22nd October 1980 particular attention was paid to the Sparrows. Almost all the birds seen were close to *italiae* or showed some *domesticus* characters, viz. grey flecking of the crown to almost completely grey crown, with the exception of one bird associating with *italiae*-type birds at Limin Hersonissos on 11th October, which was close to an autumn-plumaged *hispaniolensis* with chestnut crown and extensive flank streaking.

In addition to these birds, however, a flock of ca. 100 *P.hispaniolensis* was seen in cultivated land at Cape Hersonissos from 13th to 31st October. The males in this flock had

chestnut crowns, extensive flank streaking and the well marked black and cream streaked upper back typical of *hispaniolensis*. The females showed light breast and flank streaking. They stayed as a compact flock, feeding together on the ground in vineyards and melon fields, and did not associate with *P.d.italiae*, though the latter were also present in the same area. It seems probable that they were an immigrant flock, either on passage or possibly resident for the winter.

Odd *italiae* males had black bills; all the male *P.hispaniolensis* had horn-coloured bills.

P.d.italiae were common in all towns and villages, even quite remote villages in the hills and along the coasts. In Malia, Hersonissos and Limin Hersonissos, they roosted communally in thick trees in the built-up areas. During the day, and more paricularly in the early morning and evenings, the birds spent much time at possible nesting sites, where some depositing of nesting material was taking place. In Limin Hersonissos, where there was a considerable amount of building construction going on, the holes in the breeze block walls of the uncompleted buildings were particularly favoured. In the villages nesting sites under the tiled roofs were used, but in Limin Hersonissos few such sites were available and, as the holes in breeze block walls are only a transient feature, being covered with a concrete rendering when the buildings are completed, it is difficult to see where the large population in the town can breed unless there is so much building going on that a large number of holes is available at all times, including the breeding season. The only 'open' nest seen was one among the insulators on an electricity pylon. (Building was going on at a similar site in Elounda on 15th October). No evidence could be seen of open tree nests, which are very frequently used by *P.domesticus* in Majorca, or of extensive use of electricity pylons, a site frequently used by *P.hispaniolensis* in Malta. A very large population at the Minoan site at Knossos was occupying nest sites in the hollow box girders supporting the plastic roofs over part of the excavations. Fair numbers were also occupying holes in the sides of the Turkish aqueduct near Spilia, apparently in competition with Jackdaws *Corvus monedula*.

During the day the birds moved out to feed in the cultivated land on the outskirts of the built-up areas, taking cover from the heat of the sun at mid-day and early afternoon in olives and other dense trees, where they kept up a loud chirruping chorus.

A flock of about 10 *P.montanus* flew into a vineyard on the coast near Limin Hersonissos at 07.30 on 11th October, where they joined some *P.d.italiae* already feeding there. They were not seen again though regular observations were made in this area until 22nd October. The species does not appear to have been recorded from Crete (Lambert 1957) and it seems most likely that they were on migration, though to where is a puzzle as the Tree Sparrow is 'quite exceptional' in Africa (Etchecopar & Hue 1967).

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Falls of Autumn Migrants: 7—9.9.76

M. A. THAKE

Weather analysis

An anticyclone centred over south central Europe brought an influx of cool continental polar air over the east central Mediterranean. Cyclonic curvature over Tripolitania mixed this air with modified (humid) continental tropical air over the central Mediterranean (see Figure 1). The cooler air descended below the warmer more humid air, which was thereby trapped between two shallow layers of relatively cool air. Slow ascent of the warm air produced layers of middle cloud which gave rain over Malta on the 7th and especially the 8th September, with overcast conditions extending over a wide area from Sardinia to the east central Mediterranean. Anticyclonic conditions prevailed over the Italian peninsula, giving clear skies and tail winds further north. The situation broke down on the 9th when pressure over Italy fell.

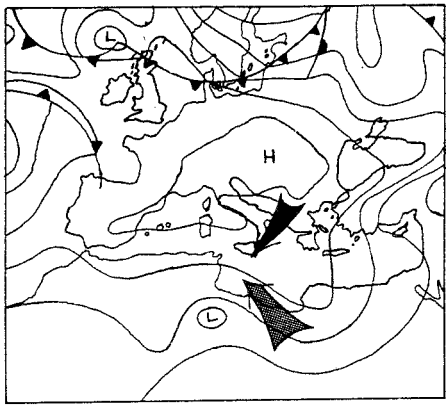

Fig.1. Surface synoptic chart at 0000 GMT, 8th September 1976. The black arrow represents cool continental polar air while the dotted arrow represents warm, humid, modified continental tropical air. (Drawn from the European Meteorological Bulletin, Deutscher Wetterdienst).

Species notes

Most of the data in Table 1 refer to birds seen at Buskett in the course of systematic watches made there in autumn. The only exceptions are the data for the Wheatear which were obtained by counting on the Dingli cliffs. The migrants seen are grouped in categories in Table 1.

TABLE 1

Migrant species grouping	6th	7th	8th	9th	10th
Turtle Dove	14	56	125	10	9
Hirundinidae	18	5	9	48	250
Motacillidae	1	22	6	1	18
Golden Oriole	1	3	4	4	4
Nocturnal migrants	2	15	17	19	7
Wheatear	1	25	30	no data	6

Discussion

The number of Hirundinidae observed was clearly lower during the period in question. These birds form large feeding flocks over Buskett during the day and numbers refer to counts or estimates of these flocks. The birds feed on suspended insects carried aloft by thermals over Buskett. It is therefore reasonable to suppose that numbers at Buskett are subject to variation with weather conditions due to interference with normal migration. The low temperatures and few hours of sunlight recorded on the days in question suggest that thermal activity on these days was reduced. The observed low numbers could thus be due to either bad migration conditions or bad feeding conditions over Buskett or both.

The data for small nocturnal passerine migrants, including Wheatears, are readily interpretable in terms of a fall, with some birds remaining on the islands until the 10th.

Falls of nocturnal migrants are frequently recorded during overcast conditions, especially if such conditions are accompanied by rain (Richardson 1978). Such conditions are likely to represent convergence on the islands in extreme cases, such as occurred in late September 1969 (Sultana and Gauci 1969, Rushforth 1970). The well lit islands are visible from a considerable distance at night and must appear quite attractive to migrants in difficulty (Thake in press). In the case of small falls, such as the one reported here, the higher numbers may simply be due to a greater proportion of the birds flying overhead being induced to interrupt their flight.

The data for the Turtle Dove present a somewhat different picture. The numbers sighted on the 7th and 8th were clearly higher than usual. The birds were however noted on migration, in flocks which kept a definite heading between south east and south west. The birds may have converged on the islands over the period in question. Such an event would have resulted in birds approaching the watch point mainly from the west and not principally from the north as was observed. The simplest interpretation is that migration on these days was more subject to leading line effects, resulting in greater concentrations than usual. This could be due to slight disorientation or to a reluctance to leave the islands, as has been suggested elsewhere in relation to Honey Buzzard migration (Thake 1981). Another interpretation is that the observed meteorological conditions induced high flying birds to fly lower where they could be sighted more readily. Birds often show reluctance to fly through cloud and the Turtle Doves may have been forced to fly below the cloud layer at heights where they could be seen more readily. Both interpretations are tenable on the available data.

While there can be little doubt that migration conditions were unfavourable over the period in question, it is by no means clear which environmental variables were being reacted to. Thus winds at low levels were generally tail winds over the Italian peninsula, while cross winds prevailed over Malta and the central Mediterranean. Birds might thus have reacted to the change in wind direction by interrupting their flight. This interpretation is not applicable to the Turtle Doves, most of which did not attempt to roost. Upper winds were cross winds with a southerly component for most of the period in question and over a large area of the central Mediterranean and the Italian peninsula, and are unlikely to have caused the falls. The extensive layers of cloud might have resulted in slight disorientation of the nocturnal migrants with some birds opting to stop over in the islands. Lastly, the birds might have reacted to the presence of extensive areas of rainfall by interrupting their flight.

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Short Notes

CATCHING PREY IN A 'FLYCATCHER MANNER'.

The manner in which *Ficedula* and *Muscicapa* spp. and some *Phylloscopus* spp. catch their insect prey in the air is well documented in various works. Other species, however, though having a totally different feeding behaviour, are sometimes observed to resort to this 'flycatcher method' when provided with the occasion. It is not uncommon to observe Starlings *Sturnus vulgaris* and Spanish Sparrows *Passer hispaniolensis* catching winged ants in the air during the latter's 'swarming flight' which frequently takes place after the rain. These ants are spotted flying up in the air by the birds which stay on the look-out on TV aerials, telegraph poles and other vantage posts. The Spanish Sparrow has also been observed by the authors chasing *Cicada orni* in flight when this large insect is disturbed from its 'shrill whistling' post. In many cases, however, it has been noted that the Spanish Sparrow fails in its attempt, which is almost hilarious to observe, to catch the Cicada which swerves madly about flying erratically. The Blue Rock Thrush *Monticola solitarius*, which mainly picks its prey from the ground, may also be observed making sorties after flying insects which it watches from its rocky perch.

The Woodchat Shrike *Lanius senator* usually flies down from its vantage look-out post to pick its prey below on the ground. However it has also been observed to catch flying insects in the air. One was noted doing this continuously on 5th May 1979 at Ramla Valley. A male Sardinian Warbler *Sylvia melanocephala* was observed for nearly half an hour doing the same thing at Lunzjata on 9th February 1980. Mosquitoes and flies were quite abundant and the Sardinian Warbler, in a *Ficedula hypoleuca* manner was leaving repeatedly its post on the lowest branch of an almond tree to pick the flying insects.

A Roller *Coracias garrulus* was also seen catching flying insects which it spotted from its perch on the top of a Carob tree at Fiddien on 1st May 1980. It was observed doing this for nearly fifteen minutes until it was disturbed (G. Bonett,pers. comm.).

Joe Sultana & Charles Gauci

INSTANCES OF BIRDS RE-LAYING IN SAME NEST CONTAINING INFERTILE EGGS.

During a search for Fan-tailed Warbler *Cisticola juncidis* nests at Fiddien on 10th June 1980, a female was flushed from a nest containing four eggs. The nest was next inspected on 16th June when the female was again incubating. On 23rd June the nest was found unattended and the four eggs were cold. It was presumed to have been deserted, probably as a result of the eggs being infertile. On 28th June, while ringing a brood in a nearby nest, a female was seen leaving the presumed deserted nest. On inspection it was found to contain seven eggs. All were identical in colour - bluish-white speckled with orange-red forming a light zone at the larger end. On 1st July the nest contained eight eggs which were again being incubated by the female. On subsequent visits on 8th and 10th July the female was found incubating the eight eggs on both occasions. On the next visit on 16th July, only broken eggs were found (the exact number could not be determined); all appeared to be infertile. The nest itself had not been disturbed.

In June 1977 an unmated female Spotted Flycatcher *Muscicapa stiata* sitting on four eggs at a site at Buskett laid at least two more eggs in the same nest after incubating the original clutch of infertile eggs for at least twenty days (Sultana & Gauci - *Il-Merill* 20:24).

In spring 1980, of three eggs in a Spectacled Warbler's *Sylvia conspicillata* nest at Ghadira only one hatched. On 19th April the nest contained two eggs and a pullus about four days old. Seven days later the fledgling had disappeared and the nest contained three eggs - the fresh egg being slightly larger than the other two, one of which had been pushed on to the rim of the nest. The nest was subsequently deserted.

A similar possible case of a Spectacled Warbler's nest which contained eight eggs has been recorded by J. Attard Montalto (*Il-Merill* 20:25).

Though such cases are obviously exceptional, care has to be taken in recording clutch size when an unusual number of eggs is found in a nest.

Charles Gauci & Joe Sultana

MALTESE RECORDS OF NORTH EAST EUROPEAN BUNTINGS WHICH WINTER IN THE ORIENTAL REGION.

The Little Bunting *Emberiza pusilla*, Rustic Bunting *Emberiza rustica* and Yellow-breasted Bunting *Emberiza aureola* are vagrants to Malta and each has been recorded on less than ten occasions (Sultana et al. 1975).

Autumn occurrences of these species in Malta between 1967 and 1976 were examined in relation to weather data. The published daily weather reports of the British Meteorological Office for three days before each record were examined and the weather situation scored as type A, B, C, etc., following the generally accepted criteria (Meteorological Office 1962). A total of ten records were examined and the pooled results are shown in Table 1. Some weather reports were not available.

Approximately two thirds of the weather reports depicted anticyclones over Scandinavia Eastern or East central Europe (types B, D, and unscored). Only two records were not preceded by weather of one of these types on at least one day. Each of these was associated with a weather type A situation bringing continental arctic air south over Fennoscandia. All records thus occurred after conditions which might have been expected to favour migration south from Fennscandia. Passive drift alone cannot account for most of these records, and the weather data cannot account for the fact that these birds migrated SSW - SW and not SE - ESE.

The birds in question might have migrated in company with other species which usually migrate between south and southwest. It is significant in this respect that Rustic Buntings have been recorded in the company of Reed Buntings *Emberiza schoeniclus* (Sultana and Gauci 1976). Alternatively , Maltese records might refer to birds which adopted an inappropriate heading independently of other birds.

The only recovery of a Rustic Bunting ringed in Malta is of some interest. A first-year male ringed at Lunzjata, Gozo, on 13th October 1976 was recovered in Rhodes eleven days later (Sultana and Gauci 1977). Rhodes lies approximately 1250 km due east of Gozo and thus lies on a great circle route which would have taken the bird to its winter quarters. Examination of local weather data and weather maps over the period between ringing and recovery showed winds between northwest and south southwest during the period in question, and the possibility of the bird's having drifted downwind cannot be excluded.

The possibility that Palaearctic-oriental migrants utilize the clockwise airflow around the Siberian anticyclone does not appear to have been investigated. This might explain why the species migrates later in autumn and earlier in spring than many palaearctic-african migrants which migrate just as far. The Siberian anticyclone dominates the Eurasian landmass from October to March or April (Riley and Spolton 1974).

It would be idle to draw hard and fast conclusions from a single recovery, especially in view of the alternative explanations. However, the incident does introduce the possibility that immature birds of this species can navigate towards a goal area whose position is known innately. Various authors (e.g. Schmidt Koenig 1970, Wiltschko 1977) have suggested that birds might navigate towards a goal area, the knowledge of whose coordinates is innate. The potential for navigation studies of species whose migration possesses a pronounced east-west trend has not been fully realised. Displacement in such species might readily be designed to give a change in direction of the great circle route without clock shifting or vice versa.

Table 1

Weather type	A	B	C	D	E	B/D	Unscored
Number of days	5	2	0	10	3	2	2
%	21	8	0	42	13	8	8

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M. A. Thake

AN UNUSUALLY LARGE INFLUX OF GLOSSY IBIS.

The Glossy Ibis *Plegadis falcinellus* to the Maltese Islands is a scarce passage migrant occurring singly or in small parties of up to 20 birds, with a maximum of 50 being recorded in one day (Sultana, Gauci, Beaman - A Guide to the Birds of Malta - 1975). 6th April 1980 thus was exceptional as a much larger number of birds were involved.

At Ghadira, the authors recorded a total of 130 birds, in flocks of up to 43, between 0600 and 0930 hrs, after which time the passage apparently ceased. Most were noted flying in a W - S direction though a very few were seen moving to the North and to the East. One bird which arrived at 0800 hrs alighted at the pool and was still present at mid-day.

At Sarraflu (Gozo) two flocks of 49 and 11 and a single individual were seen between 0630 - 0900 hrs moving to the East.

Also in the morning, 300+ were sighted at Delimara, with single birds occurring at Dragonara point, Attard and St. Lucia.

During the afternoon, only 20+ at Delimara and a flock of 32 and a single bird at Luqa were recorded.

The wind direction was ENE except for a brief spell between 0400 and 0500 hrs when the direction changed to NNW. The velocity varied from 5 to 12 knots.

Thanks are due to V.Cilia, S.Balzan, M.Zerafa and L.Cassar who were with the authors at Ghadira; to J.Sultana for the Gozo records; to S.Gatt for his Delimara records and also to J.Attard Montalto, G.Bonett, D.Cachia, R.Cachia Zammit and P.Portelli for their contribution.

Natalino Fenech & Raymond Galea

LONG-EARED OWL ENTANGLED IN ROUGH BRISTLE-GRASS.

On 11th September 1979 a Long-eared owl *Asio otus* was found dead with open wings well entangled in a thick clump of Rough Bristle-grass *Setaria verticillata* growing by the side of an irrigated field at Lunzjata, Gozo. It had been dead for a day or two and was held firmly by the plant whose numerous panicles, which have many barbed awns,were stuck all over its body and wings. On examining the specimen no sign of gunshot wounds or any other wounds were noted. It is probable that the bird tried to catch some prey which was moving amongst this grass. A few years ago the authors had been informed by a farmer that a Barn Owl *Tyto alba* had been found dead in similar circumstances at Ramla Valley.

It may be of interest to mention another instance where a female Sardinian Warbler *Sylvia melanocephala* was found hanging by its right wing at Lunzjata on 6th October 1979. Its longest primaries were thickly covered by cobweb and were twisted round a leaf of *Phragmites communis* growing amongst a clump of *Rubus ulmifolius*.

Joe Sultana & Charles Gauci

A SUPERB STARLING WITH A FLOCK OF MIGRATING EUROPEAN STARLINGS.

A Superb Starling *Spreo superbus* was taken at ix-Xerriek, limits of Marsaxlokk on 3rd October 1975. It was accompanying a flock of migrating European Starlings *Sturnus vulgaris* which, at that time of the year, start to appear in good numbers.

The Superb Starling is a bird of the East African Acacia grassland. It is the most gaily coloured of the genus *Spreo*, which includes five other species, and has the same size of the European Starling (Birds of the World - Ed. J. Gooders).

On dissection the specimen, which had no fat deposits, was found to have eaten some coleoptera and ant spp. some time before. As this species is imported into Europe for zoos and aviculturists there is the probability that this bird had escaped from captivity, was living ferally in some European country with the European Starling and then joining a flock on its south bound migration.

Alfred Vassallo

BLACK-EARED WHEATEAR ERRONEOUSLY RECORDED AS PIED WHEATEAR.

While showing a transperancy of some stuffed and mounted birds held at the National Museum of Natural History, doubts were raised as to the proper identification of one of the specimens labelled Pied Wheatear *Oenanthe pleschanka* which was taken on 28 February 1974 at Marsascala.

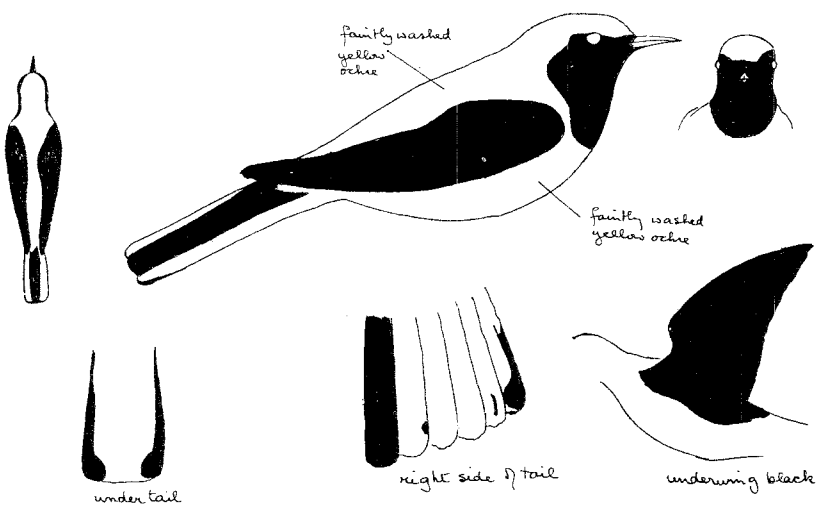
The specimen was later made available to the authors for closer examination and was found to be definitely not a Pied Wheatear. However due to the amount of black on the throat and sides of head various sketches of the specimen were sent for other ornithologists' comments. Three were in agreement with the authors that the specimen was an adult male of the eastern race of the Black-eared Wheatear *Oenanthe hispanica melanoleuca*. One suggested *Oenanthe finschii*. However *Oenanthe finschii* has the black of the side of the neck extending and joining the black shoulders while the specimen's black is separated. One must point out however that the specimen is rather badly stuffed and mounted and due to this on one side the black of the side of the neck seems as if it is touching the shoulder.

The purpose of this short note is to correct the error which has at least appeared four times in print. The specimen is also still currently labelled as Pied Wheatear at the Natural History Museum.

It appeared as Pied Wheatear in 'Some birds accidental to Malta at the National Museum of Natural History, Mdina' - *Natural Heritage* 1:1-19 (1975) where the author, Joseph A. Vella Gaffiero wrote " A single specimen, recently acquired by the Museum, was shot at Marsascala on 28 February 1974. This specimen was until now unrecorded". It also appeared in 'A Guide to the Birds of Malta' - Sultana,J.,Gauci,C. & Beaman,M.(1975) "One taken at Marsascala on 28 February 1974 (G.Fauré, pers. comm. and MOS in prep.)". It may be pointed here that G. Fauré was the collector from whom the Museum acquired the specimen. It also figured in the Systematic List for 1974 (Gauci,C.& Sultana,J. - MOS Ringing Group Report for 1974 - *Il-Merill* 16:1-26(1975). Finally it was again reported as Pied Wheatear (under the name of Pied Chat or Pleschanka's Chat *Oenanthe leucomela leucomela*) in 'Birds of the Maltese Archipelago' (1976) by Bannerman,D.A. & Vella-Gaffiero,J.A., who stated "male shot at Marsascala (Malta) 28 Feb 1974 (Vella Gaffiero - *Natural Heritage* No.1,1975,p.12). The latter specimen is now preserved in the Museum's collection at Mdina".

The authors would like to thank J. Vella Gaffiero of the Natural History Museum who kindly made available the specimen for examination and to Dr. W.R.P. Bourne, M. Beaman, P. Colston of the British Museum and P. Neophytou of the Cyprus Ornithological Society for their helpful comments on the sketches.

Joe Sultana & Charles Gauci



FACIAL STAINS IN THE SARDINIAN AND OTHER WARBLERS IN GIBRALTAR.

During January 1981, whilst out birdwatching in Gibraltar, the author caught a glimpse of what looked like a Chiffchaff *Phylloscopus collybita*, except that this one showed a flash of orange on the chin. As there was no time for focusing binoculars and as this bird was not seen again, it was given up as a one-time occurrence.

Later on during the same month, a Sardinian Warbler *Sylvia melanocephala* was seen in the same situation with a bright-orange chin, but this time the colouring extended to the facial area around the bill.

When queried about the staining Mr. C. Finlayson, Chairman of the Gibraltar Ornithological Society, provided the answer. Some of the Sardinian Warblers and Chiffchaffs, as well as Blackcaps *Sylvia atricapilla*, which had been netted for ringing had shown signs of orange around the same facial areas. This orange dye effect had been caused by the pollen from a flower of a plant that is abundant in Gibraltar and is in full bloom during January and February. The plant is *Aloe arborescens*, which is spiny and succulent. It has been noted in Malta and Gozo in the past but perhaps not in such abundance as in Gibraltar. This plant was introduced to Europe from South Africa and normally the birds that feed from its bright-orange flowers are long-billed. The Warblers are obviously attracted to this flowering plant but have relatively short bills so that their chins and facial parts become dyed orange by the pollen when they insert their bills into these flowers.

J. Fiteni

Ed. note : These yellow facial stains have also been noted by ringers in Malta on some Sardinian Warblers and Blackcaps in Winter. *Aloe arborescens* is still frequently cultivated in Malta. A short paper 'Nectar : a supplementary food source for wintering Chiffchaffs *Phylloscopus collybita*' by M.A. Thake has appeared in the *Riv.Ital.Orn.* 50(2-3) : 167-168.

SOME OBSERVATIONS ON WRENS NEAR DUBROVNIK.

The Wren *Troglodytes troglodytes* is a very numerous and common migratory and wintering bird in all the regions of the southern Adriatic, where it stays from the autumn till the spring. It arrives in the area regularly during October (4th-20th). Sometimes (but very seldom) the first individuals appear as early as September (the earliest bird was recorded on the 5th September). The autumn migration ceases at the end of October or sometimes in the first ten days of November. After that there remains the wintering population. During the winter a great part of the population lives in dense underbushes of evergreen maquis, in hedges along paths or in bushes near houses. At these sites they live isolated or in small groups of 3 - 6. The author observed that isolated specimens sleep in hollows of olive-trees or in holes of old walls or similar places. Numerous males start singing from mid-January, continuing till the end of February; they very seldom sing in the first days of March. Sometimes a few males start to sing at the end of November or in December but they don't sing so intensely as in the following months. The food of wintering birds consists of small insects, spiders or similar small creatures. The greater part of the wintering Wrens has disappeared from the East Adriatic coastal regions by the end of March. Very seldom and only occasionally a few isolated specimens can be seen in the first days of April (the author saw the last specimen on the 23rd April). During the summer months the Wren is completely absent from the coastal regions of the eastern Adriatic. At that time it is a very numerous breeding bird in the continental regions of Yugoslavia where it lives in densely wooded and covered areas especially on mountain slopes or similar places.

Ivan Tutman

HERRING GULLS CHASING GREY HERONS.

While on a fishing boat close to Filfla in the afternoon of 19th March 1980, a flock of 13 Grey Herons *Ardea cinerea* were noted heading for Filfla trying to alight on the rocks. As soon as they got near the islet the entire colony of Herring Gulls *Larus argentatus* flew out towards the herons calling repeatedly and chased them away. The herons tried more than once to alight on Filfla but each time they were chased away by the Herring Gulls which breed there.

Alfred Vassallo

Systematic List for 1977 & 1978

compiled by
RICHARD CACHIA ZAMMIT & JOHN ATTARD MONTALTO

As usual the systematic list for the two-year period under review was compiled from field notes submitted by various contributors. The extent of coverage remained much the same as in recent years. While the autumn migration of raptors was again well covered, sea-watching remained a much neglected field, no doubt due to the paucity of sea-birds in this part of the world.

Contributors to the following systematic list were : J. Attard Montalto, H.E. Axell, J. Azzopardi, D. Burley, J. Bajada, S. Balzan, M.A.S. Beaman, G. Bonett, J. Borg, D. Cachia R. Cachia Zammit, P. Caruana, V. Cilia, E. Curmi, J. Curmi, C. Fenech, F. Fenech, R. Galea, A. Gauci, M.V. Gauci, S. Gatt, B.K. German, J. Grech, J. Grima, R.M. Holman, R. Ingram, E. Mackrill, M. Mangion, M.E. Morton, J.W. Perry, J. Raincock/O. Douglas, J. Sultana, D. Summers-Smith, R. Testa, M. Thake, D. Thomas, A.P. Thompson, A. Vassallo and R. Vella.

In the systematic list, the years 1977 and 1978 have been treated separately for each species. When there were no sightings of a species in one of the two years, that year is omitted. All species have been included except for the Rock Dove *Columbia livia* of which there were no records of birds of purely wild strain.

LITTLE GREBE *Tachybaptus ruficollis* Blonġun Żgħir
1977 : 1 at St. Paul's Bay on 27 Nov.

GREAT CRESTED GREBE *Podiceps cristatus* Blonġun Prim
1977 : 1 at il-Menqa on 22 Dec.
1978 : 1 at Msida on 25-31 Oct and singles on 4th, 11th and 12 Dec.

BLACK-NECKED GREBE *Podiceps nigricollis* Blonġun Sekond
1977 : Singles at Ta' Xbiex on 5 Aug; at Salina on 28 Sep and at Sliema on 16 Dec. 1 at Pieta and 2 at Benġisa Pt. on 17 Dec.
1978 : Singles at Manoel Isle on 9 Sep, at Msida on 13-17 Oct and at Sliema on 11 Nov.

CORY'S SHEARWATER *Calonectris diomedea* Ċiefa
1977 : First seen on 7 Mar when 60+ off Għajn Damma. Breeding in usual colonies.
1978 : First seen on 7 Mar with last sighting on 29 Aug. Breeding as usual.

MANX SHEARWATER *Puffinus puffinus* Garnija
1977 : 2 off Bañar ic-Caqħaq on 13 Apr was the only offshore sighting. Bred as usual. Fully grown young still in burrows on 7 Jul.
1978 : Breeding colonies first visited on 7 Mar when ashore in good numbers. A few birds still unfledged on 1 July.

STORM PETREL *Hydrobates pelagicus* Kanġu ta' Filfla
1977 : Ca. 5,000 were ashore on Filfla on the night of 18-19 Jun.
1978 : A freshly dead bird and one calling in a cave at Għar Lapsi on 29 Aug may have been recently fledged birds from Filfla where they bred in usual numbers.

GANNET *Sula bassana* Sula
1977 : 2 on 6th and 5 on 18 Jan off l-Aħrax, singles at Marfa on 3rd and at St. Paul's Bay on 11 Apr, and at Għadira on 3 Dec.
1978 : 1-2 on 5 dates from 4 Jan to 21 Feb.

CORMORANT *Phalacrocorax carbo* Margun
1977 : 1 on 3 Apr. On 2 days each in Oct, Nov and Dec; all singles except 2 on 21 Oct.
1978 : 1 at Marsaiforn in May, 2 at Delimara on 23 Oct and singles at Sliema on 5 Nov and 2 Dec.

SHAG *Phalacrocorax aristotelis* Margun tat-Toppu
1977 : 1 over St. Julian's on 5 Dec.

BITTERN *Botaurus stellaris* Kappun
1977 : 1 at Salina on 10 Apr and 1 at Buskett on 26 Sep.
1978 : 1 at Żejtun on 7 Apr and 1 over Mellieħa on 5 Nov.

LITTLE BITTERN *Ixobrychus minutus* Russett tas-Siġar
1977 : Singles on 8 days from 20 Apr to 9 May, but 6+ at Lunzjata on 21 Apr. 1 on 1 Jun. In autumn on 5 days from 2 Sep to 16 Oct; all singles except for 7 at Girgenti on first date and 2 on 28 Sep.

1978 : Only 5 sightings of singles - 3 in April, on 11 Sep and on 5 Oct.

NIGHT HERON *Nycticorax nycticorax* Kwakka
1977 : 1 on 11 Mar, then on 14 days from 1 Apr to 27 May. Highest 100+ at Għajn Tuffieħa on 25 Apr and flocks of 30-40 in various localities on 1 Apr. In autumn on 11 days from 25 Aug to 14 Oct. Highest 40+ over Mellieħa on 4 Oct. 1 on 12 Nov.
1978 : 1-7 on 7 days from 17 Mar to 23 Apr, then 1 on 4 Jun. Heavier passage in autumn when up to 45 on 15 days from 23 Aug to 19 Nov.

SQUACCO HERON *Ardeola ralloides* Agrett Isfar
1977 : On 9 days from 3 Apr to 15 May; mostly single figures except on 18 Apr when 11 at Għadira and 12 at Hal Far. Only 2 in autumn : singles on 1 Sep and 2 Oct.
1978 : Poor year : singles on 5 days from 1 Apr to 6 May.

CATTLE EGRET *Bubulcus ibis* Agrett tal-Bhejjem
1977 : 4 at Għajn Tuffieħa on 25 Apr.

LITTLE EGRET *Egretta garzetta* Agrett Abjad
1977 : In spring on 10 days from 1 Apr to 13 May with max of 43 (in 3 flocks) at Comino on 17 Apr. 5 autumn records from 9 Aug to 20 Sep with max flock of 19 on 27 Aug.
1978 : Up to 5 on 8 days each in spring and autumn - 1 Apr to 6 May and 23 Aug to 18 Nov.

GREY HERON *Ardea cinerea* Russett Griż
1977 : 1 on 7 Jan. In spring on 7 days from 27 Mar to 13 Apr, then daily from 16th to 22 Apr; mainly single figures but 20+ at Mellieħa and 15 at Żejtun on 17 Apr. Last seen on 27 Apr. In autumn recorded on 19 dates from 9 Aug to 27 Nov; single figures except for 47 at Żejtun on 11 Sep, 37 at Għadira on 26 Sep and 37 at Marsa on 14 Oct.
1978 : 2 on 24 Feb, then on several days from 10 Mar to 1 May and again from 3 Sep to 7 Oct Max flock 35.

PURPLE HERON *Ardea purpurea* Russett Aħmar
1977 : On 13 days from 13 Mar to 15 May, with most in Apr. Largest flocks were of 8 on 1st and 21 Apr. In autumn on 11 days from 27 Aug to 16 Oct with max of 91 (in 2 flocks) over Buskett on 27 Sep. 1 on 19 Nov.
1978 : Spring passage from 15 Mar to 14 May when recorded in flocks of up to 25 on 16 dates. In autumn 1-3 birds on 9 days from 9 Sep to 6 Oct.

BLACK STORK *Ciconia nigra* Ċikonja Sewda
1978 : Singles over Xweini on 27 Apr and at ta' Qali on 20 Oct.

WHITE STORK *Ciconia ciconia* Ċikonja Bajda
1978 : 1 was shot at Għarb in April. An unidentified stork was seen on 7 Oct.

GLOSSY IBIS *Plegadis falcinellus* Velleran
1977 : Singles on 30 Mar and 3 Apr, then flock of 52 over Hal Far on 7 Apr. Only 2 autumn records : 1 at Sliema on 20th and 12 at Buskett on 26 Sep.
1978 : Only 3 records : singles on 3 Mar, 19 Apr and 2 Oct.

GREATER FLAMINGO *Phoenicopterus ruber* Fjamingu
1977 : 3 at Marsaxlokk on 26 Oct and a juv at Anchor Bay on 24 Dec.
1978 : 1 at Delimara on 3 Apr, 2 over Salina on 22 Apr and 1 at Marsascala on 11 May.

GREY LAG GOOSE *Anser anser* Wiżża Griża
1977 : 1 (female) shot off Munxar Pt. on 1 Dec.
1978 : 1 at Delimara on 1st and 4 at St. Thomas Bay on 2 Dec.

Unidentified 'grey geese' were seen as follows : 1 over Gozo on 24 Sep, flock of 80+ over Mellieħa on 22 Oct, and 8 over Żejtun on 5 Nov.

SHELDUCK *Tadorna tadorna* Kuluvert tas-Salib
1977 : Singles at Benġisa on 1st and at Qajjenza on 17 Jan. 1 at Marsaxlokk on 26 Nov; 2 at Selmun on 11th and 10+ on 14 Dec.
1978 : Singles on 11 Nov, 5th and 12 Dec. Several reported off Marsaxlokk on 11 Dec.

WIGEON *Anas penelope* Silfjun Ewropew
1977 : 1 at Marsaxlokk on 29 Nov and 2 at Għadira on 3 Dec were the only sightings.
1978 : 1 on 3 Mar; then 1 on 7th,3 on 10th and 2 on 12 Dec, mainly along south coast.

TEAL *Anas crecca* Sarsella
1977 : 1 at Dingli on 18 Dec was the only record.
1978 : Recorded on 27 Jan, 29 Mar and on 8 days from 6 Nov to 12 Dec. Max flock 100.

MALLARD *Anas platyrhynchos* Kuluvert
1977 : 6 large flocks off Benġisa Pt on 30 Nov, then on 4 days from 15th to 29 Dec; singles except for 10 at Marsaxlokk on 19th.

1978 : 1 on 20 Jul and 2 singles on 12 Dec.

PINTAIL *Anas acuta* Silfjun
1977 : 1 on 5 Mar another shot in Mar or Apr. On 6 days from 26 Nov to 16 Dec with 6 large flocks (accompanied by Mallards) off Benghisa Pt. on 30 Nov and a flock of 15 at Għadira on 2 Dec.
1978 : Marked passage on 18-21 Feb with 3 flocks on 18th and several flocks on 19th off the south coast and 600+ off Ċirkewwa on 21st. Max flock 150+. Singles on 7 Nov and 26 Dec.

GARGANEY *Anas querquedula* Sarsella Ħamra
1977 : 10+ at Għadira on 5 Mar.
1978 : Ca. 150 passed off Ċirkewwa on 21 Feb, then singles on 6 other days till 14 Mar.

SHOVELER *Anas clypeata* Palettuna
1977 : Singles at Benghisa on 9 Jan and at Għadira on 25-26 Nov. Flock of 22 over Għadira on 6 Dec.
1978 : Several flocks passed off the south coast on 19 Feb, when 1 was seen near Filfla. 1 on 7 Nov.

RED-BREASTED MERGANSER *Mergus serrator* Serra
1977 : 1 at Kalafrana on 10 Jan and 1 at Marsaxlokk on 30 Nov.
1978 : 1 at Marsaxlokk on 16 Dec.

HONEY BUZZARD *Pernis apivorus* Kuċċarda
1977 : Recorded on 11 days from 4 Apr to 9 May; usually 1-4, except on 4-5 May when low double figures recorded from various localities. In autumn, 4 at Dingli on 4 Aug, then almost daily from 9 Sep to 16 Oct. Single to low double figures on most days except for 160+ on 17th and 100+ on 26 Sep. Most autumn records from Buskett.
1978 : In spring there were 11 records of 1-8 birds on 10 days from 3 Apr to 13 May. From 1 Sep to 29 Oct in autumn when recorded on 28 days. Max 88 over Buskett on 15 Sep.

WHITE-TAILED EAGLE *Haliaeetus albicilla* Ajkla tad-Denb Abjad
1977 : 1 shot at Xagħjra on 25 Nov. (See Il-Merill 19 : 12).

BLACK KITE *Milvus migrans* Astun Iswed
1977 : 7 records of singles in spring from 26 Mar to 7 May. In autumn singles on 8th and 31 Aug, then on 7 days from 14th to 26 Sep; mostly 1-4 except for 13 at Buskett on 18 Sep.
1978 : 1-2 on 6 days from 27 Mar to 22 Apr. In autumn 1-7 on 8 days from 20 Aug to 22 Sep.

EGYPTIAN VULTURE *Neophron percnopterus* Avultun Abjad
1978 : 1 over Buskett on 24 Sep. Another was shot in Gozo in Oct.

SHORT-TOED EAGLE *Circaetus gallicus* Ajkla Bajda
1977 : 7 on 30 Sep and 1 on 2 Oct over Buskett. 1 at Għadira on 29 Oct.
1978 : Small passage in October : singles over Għadira on 5th and Wied Blandun on 7th; 2-3 over Buskett and 1 at Tas-Salib ta' l-Għolja on 8th.

MARSH HARRIER *Circus aeruginosus* Bugħadam Aħmar
1977 : On 18 days in spring from 13 Mar to 14 May (mainly late Mar to mid-Apr); all single figures except for 20+ at Gozo on 24 Mar. In autumn on 10 days in Sep from 12th and on 6 days in Oct to 20th. Mostly low single figures except for ca. 30 on 17th and 37 on 26 Sep. 1 on 12 Nov.
1978 : 1 on 12 Feb, then on 28 days from 5 Mar to 4 May, with a total of 38 sightings. Max 10+ on 14 Mar and 6 Apr. Good autumn passage with records on 22 days from 8 Sep to 8 Oct. Max 51 on 15 Sep.

HEN HARRIER *Circus cyaneus* Bugħadam Abjad Prim
1977 : Female at Hal Far on 23 Apr.

PALLID HARRIER *Circus macrourus* Bugħadam Abjad
1977 : Singles at Ta' Baldu on 19th and at Mellieħa on 23 Mar. 3 at Birkirkara on 24 Apr.
1978 : 2 at Delimara on 15th and 1 at Santa Luċia on 17 Apr.

MONTAGU'S HARRIER *Circus pygargus* Bugħadam Griż
1977 : 6 spring records, all in Apr from 2nd to 25th; all singles except 2 at Hal Far on 3rd. 1 at Żejtun on 5th Oct.
1978 : Singles daily on 23-26 Apr. 1 on 15 Sep.

'RING-TAIL' HARRIERS *Circus sp.* Bugħadam
1977 : 1-3 on 16 days from 21 Mar to 15 May, with most in Apr. 3 on 17th and 1 on 26 Sep.
1978 : 1-4 on 13 days in spring and on 5 days in autumn.

SPARROWHAWK *Accipiter nisus* Sparvier
1977 : Singles on 3rd and 21 Apr. On 7 days from 23 Sep to 25 Oct, highest 4 at Buskett on 30 Sep.
1978 : 2 on 21 Apr and 1 on 23 Sep at Buskett. 1 at Marsaxlokk on 11 Oct.

BUZZARD *Buteo buteo* Kuċċarda Prima
1977 : 1 at Birkirkara on 23 Apr. In autumn singles at Buskett on 21 Sep and 5 Oct, at Hal Far (probably *B.b.vulpinus*) on 9th and at Girgenti on 15 Oct. Another was seen at a taxidermist at the end of October.
1978 : 2 on 11 Sep and 1 on 15 Oct at Buskett.

LESSER SPOTTED EAGLE *Aquila pomarina* Ajkla tat-Tikki
1978 : 1 over Buskett on 23 Sep.

BOOTED EAGLE *Hieraaetus pennatus* Ajkla tal-Kalzetti
1977 : Singles over Buskett on 17th and 26 Sep.

OSPREY *Pandion haliaetus* Arpa
1977 : 3 sightings on 3rd and 1 on 21 Apr. 10+ were reported shot at Żurrieq on 4 May. 7 records of singles on 6 days from 14 Sep to 10 Oct.
1978 : Singles at Marsaxlokk on 22 Mar, at Mellieħa on 6th and at Bubaqra on 25 May. In autumn singles at Buskett/Salib ta' l-Għolja on 15th, 16th, 17th, 20th and 30 Sep and on 2 Oct; and 1 at Għar Hasan on 5 Oct.

LESSER KESTREL *Falco naumanni* Spanjulett Sekond
1977 : Only 1 spring record - 1 at Tal-Ħandaq on 6 May. In autumn single figures on 15 days from 14 Sep to 16 Oct, highest 8 at Buskett on 25 Sep.
1978 : 1-3 on 8 days from 14 Mar to 23 Apr. Unusual sighting on 28 July. In autumn up to 6 on 12 days from 11 Sep to 23 Oct.

KESTREL *Falco tinnunculus* Spanjulett
1977 : 1-3 in various localities in Jan-Feb. Spring passage from 12 Mar to 12 Jun, with most records from late Mar to late Apr, then becoming scattered in May. Mostly low single figures with ca. 15 on 21 Apr. Singles on 8 Jul and 2 Aug. In autumn on 15 days from 3rd to 28 Sep, then daily from 1st to 17 Oct. On 9 days from 22 Oct to 22 Nov. Single to very low double figures.
1978 : Sightings in every month except Jun. Singles on 9 days in Jan-Feb, then on most days from 4 Mar to 16 May with max of 70+ on 21 Apr. Singles on 22 Jul and 3 Aug, then on 18 days from 10 Sep to 29 Oct with max of 30 on 30 Sep. Sporading sightings till 17 Dec.

RED-FOOTED FALCON *Falco vespertinus* Żumbrell
1977 : Passage on 21 Apr when recorded from various localities, highest 25 at Safi. Then 1-2 on 6 days from 22 Apr to 24 May. Another 7 which were shot in May were seen at a taxidermist. In autumn singles on 26 Sep and 5 Oct.
1978 : On 8 days from 6 Apr to 17 May; singles except for 25+ at Buskett on 21 Apr. None recorded in autumn.

MERLIN *Falco columbarius* Seqer ta' Denbu
1977 : 1 at Valletta on 24 May. Singles at Mellieħa on 15th and at Tal-Virtù on 16 Oct.

HOBBY *Falco subbuteo* Seqer tal-Ħannieqa
1977 : Recorded on 15 days from 2 Apr to 27 May (most in late Apr); single figures except for 10+ on 21 Apr. In autumn recorded on most days from 11 Sep to 16 Oct. Max 40 at Buskett on 26 Sep, otherwise mainly low double or high single figures.
1978 : 23 records on 11 days from 2nd to 29 Apr with a max of 22 on 21 Apr at Buskett. Autumn passage from 24 Aug to 23 Oct, with 30 sightings on 22 days.

ELEONORA'S FALCON *Falco eleonorae* Bies tar-Reġina
1977 : Singles on 17 Apr, 4 May and 15 Jun, then on autumn passage from 17 Sep to 4 Oct when recorded on 6 days at Buskett; all singles except 3 on 22nd.
1978 : 1 on 20th and 3 singles on 21 Apr. Singles on 8 May, 1st and 9 Jul. Passage from 19 Aug to 14 Oct with sightings on 18 days; mainly singles but 4 on 30 Aug and 2-3 on 4 other days.

LANNER *Falco biarmicus* Bies Rasu Qastnija
1978 : 1 at Marsaxlokk on 8 Sep.

SAKER *Falco cherrug* Bies Rasu Bajda
1977 : Singles shot at Marsascala on 8th and at Delimara on 9 Apr.
1978 : 1 at Baħar iċ-Ċagħaq on 3 Mar.

PEREGRINE *Falco peregrinus* Bies
1977 : Usual pair at Ta' Ċenċ - seen on various days till May. Also 1 imm. there on 8 May. Records of immatures from various other localities (usually coastal cliffs) throughout the year.
1978 : Usual pair bred at Ta' Ċenċ where 2 juvs present on 6 Jun. Singles over Għadira on 11 Feb and 1 May.

QUAIL *Coturnix coturnix* Summiena
1977 : 1 on 22 Feb. On 6 scattered dates from 14 Mar to 11 Apr, then almost daily from 15th to 29 Apr; always low single figures. Singles on 8 May and on 31 Jul. In autumn 1-2 on 3rd, 4th and 11 Sep, small passage on 27 Sep with ca. 25 in one place, and singles on 1st and 25 Oct.
1978 : First seen on 24 Feb, then 14 records of 1-4 birds until 30 Apr. Singles on 29 May and 18 Dec.

WATER RAIL *Rallus aquaticus* Gallozz tax-Xitwa
1977 : 1 on 8 Feb. Singles on 22 May and 4 June were unusually late. In autumn singles on 21st and 31 Oct, on 6 days in Nov, and on 6th and 20 Dec. Most sightings at Girgenti
1978 : 1 on 28 Jan. 1 found dead at Marsa on 22 Oct, then 1-2 on 9 days from 4 Nov to 26 Dec. Most records from Girgenti.

SPOTTED CRAKE *Porzana porzana* Gallozz tat-Tikki
1977 : 1 at Buskett on 18 Mar. Singles at Rabat on 11th and at Girgenti on 16-17 Sep.
1978 : Singles on 5th, 9th, 11th and 12 Mar.

LITTLE CRAKE *Porzana parva* Gallozz Żgħir
1977 : Single birds at Sliema on 29 Mar, at Wied il-Luq on 8 Sep and at Rabat on 23 Sep.
1978 : 1 at Girgenti from 2nd to 15 Apr.

BAILLON'S CRAKE *Porzana pusilla* Gallozz tal-Faxxi
1977 : 1 seen at a taxidermist in May.
1978 : 1 at Għadira on 5-9 April.

CORNCRAKE *Crex crex* Gallozz Aħmar
1977 : 1 seen at a taxidermist in May and 1 at Marsa on 24 Sep.
1978 : 1 at Marsaxlokk on 8 Sep.

MOORHEN *Gallinula chloropus* Gallozz Iswed
1977 : Singles on 13th, 23rd and 24 Jan at Lunzjata and on 8 Feb at Girgenti. 15 records of 1-2 from 27 Mar to 21 May, then singles at Marsa on 8-16th and at Girgenti on 11 Jun. In autumn 1-2 on 16 days from 13 Aug to 28 Oct, but 8+ at Girgenti on 16 Sep. 3 on 6 Nov and singles on 17 Nov, 10th and 26 Dec.
1978 : Up to 4 recorded on 22 days from 11 Jan to 27 May, then 1-2 on 5 days from 8 Oct to 18 Nov.

AMERICAN PURPLE GALLINULE *Porphyrula martinica*
1977 : 1 shot at Salina in autumn could have been an escaped bird (see Il-Merill 19:14-15).

COOT *Fulica atra* Tiġieġa tal-Baħar
1977 : Singles at Għadira on 12th and at St. Thomas Bay on 20 Nov. 1 found dead on road on 26 Nov.

CRANE *Grus grus* Grawwa
1977 : 1 at Għajn Tuffieħa on 3 Mar. 3 at Żejtun on 4 Nov, 3 at Għadira on 3rd and 1 at Żejtun on 11 Dec.
1978 : 2 over Mellieħa on 22 Feb and 1 over Buskett on 25 Nov.

LITTLE BUSTARD *Tetrax tetrax* Pitarra
1978 : 1 male at Delimara on 23 Mar.

OYSTERCATCHER *Haematopus ostralegus* Gallina tal-Baħar
1977 : 1 at Marsascala on 27 Apr, 5 at Għadira on 31 Jul, and 3 at Ta' Xbiex on 5 Aug.
1978 : Singles at Marsalforn on 5 Aug and at Manoel Island on 9 Sep.

BLACK-WINGED STILT *Himantopus himantopus* Fras-servjent
1977 : 1-2 on 3 days from 23rd to 30 Mar, then 2 on 11 Apr and 3 on 11 May.
1978 : 4 at Marsaxlokk on 22 Mar and 2 at Għadira in April.

AVOCET *Recurvirostra avosetta* Xifa
1977 : Flock of 26 over Għadira on 9 Aug.
1978 : Singles at Għadira on 21 Apr and 9 Jul, and at Marsa on 13 Sep.

STONE CURLEW *Burhinus oedicnemus* Tellerita
1978 : 1 at Tal-Ġordan on 24 Mar. 4 at Għallis on 23rd and 1 at Bubaqra on 28 Oct.

CREAM-COLOURED COURSER *Cursorius cursor* Nankina
1978 : 1 shot in Gozo in April

PRATINCOLE *Glareola pratincola* Pernicjotta
1977 : 2 at Ta' Qali on 20 Apr and 1 at Rabat on 1 May.

LITTLE RINGED PLOVER *Charadrius dubius* Monakella
1977 : Single figures on most days from 12 Mar to 24 Apr, except for 20+ at Salina on 10 Apr. 1-2 on 1 st, 17th and 18 May. In autumn recorded on 21 days from 3 Jul to 18 Oct, with most in Jul-Aug. Always low single figures but 9 at Salina on 30 Aug
1978 : Up to 14 on most days from 10 Mar to 15 May. In autumn up to 25 on 19 days from 6 Aug to 2 Oct.

RINGED PLOVER *Charadrius hiaticula* Monakella Prima
1977 : 1-3 on 5 days from 2 Apr to 17 May. In autumn 1-3 on 23rd, 28th, and 30-31 Aug. Most records from Salina and Għadira.
1978 : 7 records from 18 Apr to 13 May. 1 on 21 Aug.

KENTISH PLOVER *Charadrius alexandrinus* Monakella Saqajha Suwed
1977 : 7 records, all of single birds in spring from 2 Apr to 3 May (most in early Apr). 1 at Salina on 26 Aug.
1978 : Singles on 3rd and 23 Apr, 13 Jul and 6-7 Sep.

GREATER SAND PLOVER *Charadrius lescenaultii* Birwina tad-Deżert
1978 : 1 at Delimara on 17 Jul.

DOTTEREL *Charadrius morinellus* Birwina
1977 : 1 on 24 Mar and 1 on 5 Jul. Singles on 7 days from 4 Sep to 16 Oct and on 20 Nov. Passage (no numbers given) over Gozo on 4 Dec.
1978 : 1-2 birds on 9 dates from 27 Aug to 26 Nov.

GOLDEN PLOVER *Pluvialis apricaria* Pluviera
1977 : Up to 50 at Hal Far in Jan-Feb. In autumn first on 17 Oct, then very few scattered records till 29 Nov after which date seen almost daily till 14 Dec. Single to low double figures. A few stayed in suitable places till year end.
1978 : Flock of ca. 65 at Hal Far on 8 Jan and 1 on 7 Feb. Then recorded on 10 days from 22 Oct to 9 Dec, with a max of 70+ on 11 Nov.

GREY PLOVER *Pluvialis squatarola* Pluviera Pastarda
1977 : 4 at Hal Far on 17 May and singles at Delimara on 17 Aug and 17 Oct.
1978 : 1 at Xrobb l-Għagin on 21 Aug.

LAPWING *Vanellus vanellus* Venewwa
1977 : 10 on 30 Oct and 3 on 20 Nov, then small passage from 2nd to 18 Dec when seen in high single to low double figures on 6 days, but 94 (in 3 flocks) over Għadira on 6th. 1 on 31 Dec.
1978 : On 5 days from 8th to 22 Jan with 45 over Marsa on 16th highest. 40+ at Għallis on 23 Oct, then up to 14 on 5 days from 1st to 9 Dec.

SANDERLING *Calidris alba* Pispisella Bajda
1977 : 1 at Salina on 2 Apr and 30+ over Orejten on 17 May. Another 10 were seen shot in May.
1978 : Singles at Għadira on 16 Apr and at Marsaxlokk on 10 Sep.

LITTLE STINT *Calidris minuta* Tertuxa
1977 : 1 on 9 Jan. On various days from 23 Mar to 27 May; mainly single to low double figures, max 25+ on 9 May. In autumn recorded in single figures from 26 Jul to 4 Sep, highest 7 on 28 Aug. Singles on 2nd and 16 Oct and from 2nd to 6 Dec.
1978 : Up to 20 on most days from 10 Mar to 15 May. Singles on 21st and 25 Jul, then 1-5 on 9 days from 9 Aug to 13 Sep.

TEMMINCK'S STINT *Calidris temminckii* Tertuxa Griża
1977 : 1 on 31 Mar and 1-3 on 3-5 Apr at Għadira. Singles at Marsa and Ramla Valley on 9 May and again at Marsa on 17th. In autumn singles at Rabat on 5th and at Salina on 15 Aug.
1978 : Singles at Għadira on 24 Mar and 30 Apr. 2 on 20th and 1 on 23 Aug at Salina.

CURLEW SANDPIPER *Calidris ferriginea* Beggazzina Ħamra
1977 : 1 on 12th, 5 on 18th, and 3 on 20 Apr, and 1 on 11 May. In autumn singles on 12th, 26th and 30 Aug, 3rd and 11 Sep. Most at Għadira and Salina.
1978 : 1-5 on 8 days from 10 Apr to 13 May. 1 on 21 Jul.

DUNLIN *Calidris alpina* Beggazzina tat-Tiżż
1977 : 3 at Għadira on 3rd and 18 Apr. 1-2 on 8th, 14th and 28 Aug and on 1 Oct.
1978 : Singles at Salina on 16 Aug (found dead) and at Għadira on 8th and 29 Oct.

BUFF-BREASTED SANDPIPER *Tryngites subruficollis* Girwiel Amerikan
1978 : 1 at Mal Far on 2 Oct.

RUFF *Philomacus pugnax* Girwiel
1977 : Recorded almost daily from 12 Mar to 7 Apr, then daily from 13th to 23 Apr. Mainly single or low double figures except for 60+ on 26th and 70+ on 29 Mar. 1 on 1st and 2 on 18 May. In autumn 1-2 on 13th, 23rd and 27 Aug and on 8th and 17 Oct. 1 at Għadira on 3 Dec.
1978 : On 12 days from 26 Feb to 13 May with max of 12 on 3 Apr. Singles on 17 Aug and 7 Dec.

JACK SNIPE *Lymnocryptes minimus* Ċinkonja
1977 : 2 at Rabat on 6 Nov; singles at Għadira on 22-23rd and 1 at Lunzjata on 28 Dec.
1978 : 1-2 on 12 days from 3 Jan to 3 Apr.

SNIPE *Gallinago gallinago* Bekkaċċ
1977 : Singles on 3rd and 5 Jan, then on 10 days from 5 Mar to 25 Apr. Max 4 at Marsa on 23 Mar, otherwise 1-2. 1 on 27 May. In autumn 1 on 15-16 Sep, 2 on 14th and 1 on 18 Oct then singles on 3rd and 12 Nov and on 16 Dec.
1978 : Very frequent from 3 Mar to 7 May with a total of 23 sightings. Max 9 on 16 Mar. Singles on 9 days from 22 Oct to 19 Nov.

GREAT SNIPE *Gallinago media* Bekkaċċ ta' Mejju
1977 : 1 at Salina on 2 Apr.
1978 : Singles on 4th and 11 Mar, 22nd and 23 Apr.

WOODCOCK *Scolopax rusticola* Gallina
1977 : Singles on 18 Jan and 30 Sep. Then on 14 days from 15 Oct to 21 Nov; always single figures with max of 6+ on 2 Nov. Singles on 6th and 23 Dec.
1978 : Recorded on 8 days from 25 Oct to 26 Dec; single figures, occasionally up to 10.

BLACK-TAILED GODWIT *Limosa limosa* Girwiel Prim
1978 : 1 on 11 Feb, then 6 records in March : singles on 3rd and 10th, 3 on 11th, 2 on 12th and 13 on 28th. 1 on 5 Oct.

BAR-TAILED GODWIT *Limosa lapponica* Girwiel Denbu bl-Istrixxi
1977 : 1 seen at a taxidermist in May

WHIMBREL *Numenius phaeopus* Gurlin Żgħir
1977 : 1 at Għadira on 20 Apr and 1 at Delimara on 22 Aug.

SLENDER-BILLED CURLEW *Numenius tenuirostris* Gurlin Geddumu Raiq
1977 : 1 at Iċ-Ċumnija on 6 Dec.
An unidentified 'Curlew' was seen over Sliema on 1 Dec 1978.

SPOTTED REDSHANK *Tringa erythropus* Ċuvett
1977 : 1 at Lunzjata on 20 Apr.
1978 : 1 at Għadira on 23 Apr.

REDSHANK *Tringa totanus* Pluverott
1977 : Singles on 30 Mar and on 3rd and 5 Apr; 2 on 25 Jul and 3 on 4 Sep.
1978 : 8 records of 1-2 birds in spring from 10 Mar to 29 Apr. In autumn singles on 8 days from 17 Jul to 23 Oct.

MARSH SANDPIPER *Tringa stagnatilis* Ċewċewwa Żgħira
1977 : 1 at Salina on 10 Apr.

GREENSHANK *Tringa nebularia* Ċewċewwa
1977 : On 5 days in spring from 10th to 23 Apr, max 10 at Salina on 10th, otherwise 1-3. 1 on 15 Aug.
1978 : Singles on 13 May, 17th and 27 Aug.

GREEN SANDPIPER *Tringa ochropus* Swejda
1977 : 1-5 on 11 days from 26 Mar to 21 Apr. Singles on 18th and 25 Jun. Then 1-3 on 14 days from 23 Jul to 3 Sep. Singles on 26 Sep and on 22-23 Oct.
1978 : In spring 19 records of 1-5 birds from 11 Mar to 6 May. Singles on 26 Jun and 1 Jul, then on 15 days from 23 Jul to 12 Nov. Mainly singles, but sometimes up to 30 at Salina.

WOOD SANDPIPER *Tringa glareola* Pespus tal-Baħar
1977 : Recorded very frequently from 19 Mar to 28 May; always single figures but 50+ at Salina on 2 Apr. 1 on 21 Jul, then on 6 days from 13 Aug to 11 Sep; highest 79 at Salina on 15 Aug, otherwise single to low double figures. 2 on 26 Sep.
1978 : Up to 10 on 18 days from 1 Apr to 7 May. Flock of 37 in Grand Harbour on 15 Aug..

COMMON SANDPIPER *Actitic hypoleucos* Beggazzina tar-Rokka.
1977 : Recorded frequently from 2 Apr to 17 May. Max of 50+ at Salina on 12 Apr, otherwise

single figures. 3 on 12th and 1 on 19 Jun. In autumn recorded almost daily from 8 Jul to 12 Sep; single to low double figures with max of 30+ at Marsamxett on first day. 1 on 2 Oct.
1978 : 1-2 on 10 days from 28 Mar to 5 May. Commoner in autumn with records of up to 12 on several days from 21 Jul to 21 Sep.

TURNSTONE *Arenaria interpres* Monakella Mperjali
1977 : 6 at Hal Far on 17 May and 1 at Marsaxlokk on 6 Jun.
1978 : Singles at Għadira on 30 Apr and at Benġisa on 9 Oct.

POMARINE SKUA *Stercorarius pomarinus* Ċiefa ta' Denbha
1978 : 1 offshore on 8 Oct.
GREAT SKUA *Stercorarius skua* Ċiefa Kbira
A specimen seen at a taxidermist was shot either in Dec 1976 or in Jan 1977.
1978 : A ringed bird was recovered 14 km east of Malta on 23 Jul.
MEDITERRANEAN GULL *Larus melanocephalus* Gawwija Rasha Sewda
1977 : Singles on 1st, 16th and 19 Mar. 9 on 6 Nov, then almost daily in Dec from 2nd. Single to low double figures, highest 50 in Grand Harbour on 18th.
1978 : Up to 30 on 11 days in Jan-Mar to 13th. Singles on 22 Jul and 27 Nov, 2 on 3rd and ca. 27 on 28-29 Dec. Most in Grand Harbour.

LITTLE GULL *Larus minutus* Gawwija Żgħira
1977 : Recorded only in December : singles at Sliema on 7th and 16th, 1 in Grand Harbour on 29th and 1 at Gżira on 31st.
1978 : 1 at Msida on 15 Dec.

BLACK-HEADED GULL *Larus ridibundus* Gawwija Rasha Kannella
1977 : Double to low treble figures in harbours in Jan-Feb, max 450+ at Sliema on 7 Jan. Double figures in March to 11th, then 1-4 till 18th. 2 on 24 Oct and 1 on 12 Nov, then daily from 25 Nov, numbers fluctuating considerably, but mainly double figures. Highest 800+ in Grand Harbour on 11th and 18th Dec.
1978 : Recorded almost daily in Jan-Mar to 30th with peaks of 400 on windy days. 1 on 11 Sep, then on most days from 18 Oct onwards,with max of 157 at Marsa on 1 Dec.

SLENDER-BILLED GULL *Larus genei* Gawwija Geddumha Rqiq
1978 : 5 on 12th and 2 on 13 Mar at Marsaxlokk

AUDOUIN'S GULL *Larus audouinii* Gawwija Geddumha Aħmar
1977 : 2 off Munxar Pt. on 10 Oct.

LESSER BLACK-BACKED GULL *Larus fuscus* Gawwija Daharha Iswed
1977 : 4 on 18th and 19 Jan; singles on 26 Feb, 8 Mar and 21 Apr; 1 on 17 Oct; 2 on 2nd and 1 on 26 Nov, and 1 on 30 Dec.
1978 : 1 on 7 May, 2 on 29 Nov and 1 on 1 Dec.

HERRING GULL *Larus argentatus* Gawwija Prima
1977 : Recorded throughout the year mostly in single figures; double figures recorded mainly during Dec, with max of 70 in Grand Harbour on 13th. Max counts at breeding colonies : 50 at Ta' Ċenċ on 15 May, 60 at Wardija Pt. on 28 May, 30+ at Dingli Cliffs on 3 Jul, and 160+ at Filfla on 18 Jun.
1978 : Present all the year round. Peak count ca. 200 on Filfla in June and July.

GULL-BILLED TERN *Gelochelidon nilotica* Ċirlewwa Geddumha Oħxon
1977 : 1 at Marsaxlokk on 10 Apr and 1 at Sliema on 6 Dec.
1978 : 1 at Marsaxlokk on 21 May.

CASPIAN TERN *Sterna caspia* Ċirlewwa Prima
1977 : Ca. 9 at Marsascala from 19th to 24 Apr.
1978 . 1 at Delimara on 13th and 1 at Marsaxlokk on 28 Sep and 3 at Għadira on 7 Nov.

SANDWICH TERN *Sterna sandvincensis* Ċirlewwa tax-Xitwa
1977 : 1 at Ċirkewwa on 26 Dec.
1978 : 2 singles on 25 Feb and 1 on 26 Mar. Singles on 25th, 29th and 31 Dec.

COMMON TERN *Sterna hirundo* Ċirlewwa tal-Baħar
1978 : 1 at Marsaxlokk on 10 Jul.

LITTLE TERN *Sterna albifrons* Ċirlewwa Żgħira
1977 : 1 off Delimara on 16 Aug.
1978 : 1 at St. Thomas Bay on 26 Sep.

BLACK TERN *Chlidonias niger* Ċirlewwa Sewda
1977 : Recorded only in August: singles at Marsalforn on 8th and at Għadira on 10th, ca.10 in Grand Harbour on 20th, 21 off l-Aħrax Pt. on 28th and 1 at Salina on 31st.

1978 : 2 at Delimara on 6th and 2 at Marsaxlokk on 8 May. 3 off l-Aħrax on 7 Aug.

WHITE-WINGED BLACK TERN *Chlidonias leucopterus* Ċirlewwa tal-Ġewnaħ Abjad
1977 : 1 at Marsa on 22 Apr and 2 at Salina and 1 at Qajjenza on 9 May.
1978 : Singles in Grand Harbour on 1st, 8th and 9 Aug.

STOCK DOVE *Columba oenas* Tudun tas-Siġar
1977 : 1 seen at a taxidermist on 29 Oct.

WOOD PIGEON *Columba palumbus* Tudun
1977 : Singles at Buskett on 18th and 26 Mar, at Dingli Cliffs on 19 Apr and at Għadira on 16 Oct and 13 Nov.
1978 : 1 at Mellieħa on 14 Mar.

TURTLE DOVE *Streptopelia turtur* Gamiema
1977 : In spring no records till 15 Apr but then daily till 10 May; mainly double to low treble figures on most days. Max 400+ at Lunzjata on 21 Apr. Treble counts were also made on same day in 3 other localities. Then single to very low double figures on most days from 13th to 31 May, but ca. 140 at Mizieb on 17th. 1-3 recorded on 11 days in Jun to 28th. In Jul, 1 on 5th and 9th, and 2 on 17th. In autumn single to low double figures almost daily from 23 Aug to 25 Sep, then 1-3 on 8 days from 30 Sep to 18 Oct. Max 50+ on 8 Sep.
1978 : 1 on 28th and 2 on 30 Mar, then on most days from 6 Apr to 26 May with max of 1500 on 16 Apr. 1-2 on 11 days in Jun-Jul. 1 on 3 Aug, then on most days from 23 Aug to 24 Sep (max 115 on 9th) with occasional sightings till 22 Oct.

PALM DOVE *Streptopelia senegalensis* Gamiema ta' l-Ilwien
1977 : Singles shot at Hal Far on 13 Mar and near Żabbar on 8th and 21 Oct.

CUCKOO *Cuculus canorus* Daqquqa Kaħla
1977 : Spring passage from 26 Mar to 15 May with peak on 15-23 Apr when 1-5 daily, otherwise 1-2 on 9 other days. In autumn singles on 30 Jul, 13 Aug, 6th, 26th and 28 Sep, and 1 Oct.
1978 : Frequent from 19 Mar to 6 May with 26 sightings, mainly of single birds. In autumn singles on 6 days from 26 Aug to 7 Oct.

BARN OWL *Tyto alba* Barbaġann
1977 : 1 at Xagħra on 11 Sep was the only sighting.
1978 : Singles in Gozo in July and at Buskett in August.

SCOPS OWL *Otus scops* Kokka
1977 : 2 on 17th and 1 on 28-29 Jan. 5 single birds recorded on 4 days from 13th to 22 Apr. 1 at l-Aħrax on 10 Jul was unusual. In autumn 1-5 on 10 days from 17 Sep to 21 Nov. 1 on 5 Dec.
1978 : Only 4 records in spring - 4 Mar to 10 Apr, with a max of 40 in Gozo on 6 Apr. 1 on 4 Nov, then 1-3 at Buskett in Dec at least to 16th.

SHORT-EARED OWL *Asio flammeus* Kokka tax-Xagħri
1977 : Singles at Rabat on 20 Mar and 7 Apr and at Tas-Salib on 21 Apr.
1978 : 1 at Baħrija on 10 Mar. 7 on 27th and 2 on 28 Oct at Hal Far.

NIGHTJAR *Caprimulgus europaeus* Buqrajq
1977 : 1 on 10th, then almost daily from 18th to 30 Apr. Always low single figures, but ca. 20 from 5 different localities on 18th. Then 1-3 on 4 days from 4th to 17 May. 1 at Lunzjata on 1st, 5th and 6 Jun. In autumn 1-2 on 5 scattered days from 14 Sep to 8 Oct.
1978 : Only 4 sightings : singles on 13 Apr, 6 May, 30 Aug and 19 Oct.

SWIFT *Apus apus* Rundun
1977 : 7 at Sta. Venera on 15 Feb were very early birds. Almost daily from 26 Mar to 8 Oct. Single figures till 6 Apr, then double figures, with treble figures recorded occasionally from mid-May to mid-Aug (max 150+ on 7 Aug). Only low double or single figures after mid-Aug. 2 on 22 Oct.
1978 : On most days from 10 Mar to 8 Oct with up to 600 on any one day.

PALLID SWIFT *Apus pallidus* Rundun Kannelli
1977 : Singles at l-Aħrax Pt on 6 Jun, at Valletta on 18 Jul, and at Buskett on 24 Sep.
1978 : Singles at Mellieħa on 29 Apr, at Bubaqra on 2 Jul, at Buskett on 15 Sep and Bubaqra on 21 Oct.

ALPINE SWIFT *Apus melba* Rundun Żaqqu Bajda
1977 : In spring recorded on 7 days from 8th to 23 Apr; 1-2 except for 9 at Mellieħa on 21st. 2 on 29 May, 1 on 19 Jun and 2 on 9 Jul. In autumn recorded on 7 widely scattered days from 10 Aug to 8 Oct, highest ca. 19 at Buskett on 22 Sep. On the last date 1-3

were recorded from various localities.
1978 : 19 sightings in spring from 18 Mar to 16 May with max of 18 on 29 Mar. 1 on 10th and 4 on 24 Jun. In autumn on 6 days at Buskett from 23 Aug to 2 Oct; 5 on first day otherwise 1-2.

LITTLE SWIFT *Apus affinis* Rundun Żgħir
1977 : 1 at Salina on 23 Apr.

KINGFISHER *Alcedo atthis* GMasfur ta' San Martin
1977 : Singles on 11 days from 26 Jul to 12 Sep (most in mid-Aug), and on 9th and 16 Oct.
1978 : 1 found dead on Comino on 19 Mar. Sightings of 1-4 on 15 days from 3 Aug to 22 Nov.

BEE-EATER *Merops apiaster* Qerd in-Naħal
1977 : Spring passage from 6 Apr to 10 Jun with 15 different sightings on 10 days. Most in mid-late May. Max 50+ over Salina on 29 May. Only 2 autumn records, both at Buskett: 1 on 11th and flock of 80+ on 17 Sep.
1978 : Passage on 28 Apr with 10+ at Buskett and 20+ at Mellieħa; 2 on 27 May and 2 Jun. 2 on 20 Sep.

ROLLER *Coracias garrulus* Farruġ
1977 : Only 3 records of single birds : at Lunzjata on 21 Apr, at Mtaħleb on 5th and at Mtarfa on 17 May.
1978 : Singles on 6 days from 15 Apr to 1 May. 1 on 11 Sep.

HOOPOE *Upupa epops* Daqquqa tat-Toppu
1977 : Scattered sightings from 25 Feb, then single figures almost daily from 22 Mar to 8 Apr, after which recorded on 8 days, the last on 17 May. In autumn 1-2 on 13 days from 16 Aug to 28 Sep.
1978 : Very frequent from 8 Mar to 28 Apr with a total of 28 records and a max of 50+ in Gozo on 6 Apr. Singles on 10 days from 6 Aug to 9 Sep.

WRYNECK *Jynx torquilla* Bulebbiet
1977 : Singles in 3 localities in Jan-Feb but 2 at Rabat on 18 Feb. Spring passage from 24 Mar to 14 May, with most in Apr. Only single birds recorded. In autumn 1 on 28 Aug, then 1-3 on 13 days in Sep and almost daily throughout Oct and to 6 Nov. Scattered sightings till 10 Dec.
1978 : 1-4 frequently recorded from Jan to 23 Apr and from 16 Sep onwards. Main passages from 4 Mar to 23 Apr and from 16 Sep to 5 Nov.

HOOPOE LARK *Alaemon alaudipes* Alwetta Bumunqar
1977 : Singles at San Blass on 30 Aug and at il-Qaws on 2 Dec.

SHORT-TOED LARK *Calandrella brachydactyla* Bilbla
1977 : First on 9 Mar then frequent with 100+ from 2 localities on 23rd. Daily from 3 Apr onwards and bred in usual numbers. Slight increase in Aug-Sep due to passage birds. Last seen on 25 Sep.
1978 : First were 6 on 19 Mar. Bred in usual numbers. Regularly seen until 20 Sep. 1 on 5 Oct.

WOODLARK *Lullula arborea* Ċuqlajta
1978 : Singles at Delimara on 23 Oct and 6 Nov.

SKYLARK *Alauda arvensis* Alwetta
1977 : Few wintering birds present; low double figures recorded only from Gozo (max 30+ at Sarraflu on 12 Feb). Very slight evidence of return passage in Mar with ca. 20 at Mellieħa on 27th. 1-3 till 16 Apr. In autumn daily from 30 Sep with a peak from 13 Oct to 6 Nov. Highest on 5 Nov with a continuous passage of flocks of up to 50 each. Single to very low double figures, max 15, till year end.
1978 : Frequent in Jan-Mar with few until 23 Apr. Max 20 on 14 Jan. Again regular from 9 Oct onwards with a peak in mid-Oct to mid-Nov. Medium double figures on most days.

SAND MARTIN *Riparia riparia* Hawwiefa tax-Xtut
1977 : First on 26 Mar then almost daily with peaks on 21 Apr (1500 from 5 localities) and on 9 May (1000+ at Salina). Treble figures recorded till 1 Jun, then double to single figures till 6 Jun. 1 on 22 Jul. In autumn 1-3 on 4 days in Aug from 17th, and almost daily from 2 Sep to 16 Oct. Highest 200+ at Salina on 9 Oct, otherwise mainly single figures. 1 at Lunzjata on 2 Dec.
1978 : On most days from 9 Mar to 28 May with max of 900+ on 29 Apr. Smaller numbers in autumn from 20 Aug to 11 Nov, with most in Sep. Max 100+ on 17 Sep.

CRAG MARTIN *Ptyonoprogne rupestris* Hawwiefa tal-Blat
1978 : 1 at Delimara on 6 Nov.

SWALLOW *Hirundo rustica* Mutfafa
1977 : 1 at Ramla Valley on 16-23 Jan and 4 on 27 Feb. Spring passage first on 19 Mar, then

daily from 25 Mar to 15 Jun. Treble figures frequent till 9 May, then double figures till early Jun. Max 800+ at Xagħra on 26 Apr. Singles on 18th and 26 Jun and 9 Jul. In autumn 1-3 on 3 days from 23 to 28 Aug, then daily from 31 Aug to 25 Oct, with treble figures from 11 Sep to 22 Oct. Max 1000+ at Rabat on 13 Oct. Up to 15 on 11 other days till 21 Nov.

1978 : 10 on 18 Feb, then daily from 6 Mar to 27 May. Several large passages, with up to 1300 birds, in Apr-May. Singles on 3rd and 18 Jun and 4 Jul, then almost daily from 29 Aug to 12 Nov. Smaller numbers than in spring : usually high double figures with up to 250 on a few days.

RED-RUMPED SWALLOW *Hirundo daurica* Reġina tal-Ħuttaf

1977 : Singles on 6 days from 2 Apr to 15 May, mostly in Gozo. 1 at Rabat on 24 Jun and 1 at Xemxija on 9 Oct.

1978 : 1-3 on 6 days from 25 Mar to 14 Apr. 1 on 10 Nov.

HOUSE MARTIN *Delichon urbica* Ħawwiefa

1977 : Up to 4 on a few days from 26 Jan, then almost daily from 26 Mar to 11 Jun. Treble figures recorded mainly after mid-April, with max of 500 at Qormi on 21 Apr. 1-2 on 18-19 Jun. In autumn singles on 21 Aug and 8 Sep, then on most days from 11 Sep to 23 Oct. Max 300+ at Buskett on 8 Oct, otherwise mainly single to very low double figures. Up to 3 on 5 days from 26 Nov to 4 Dec.

1978 : On most days from 26 Feb to 28 May. Usually low treble figures with up to 500 on a few days. Singles on 25 Jun and 2 Jul. On 3 days in Aug from 13th, then low double figures (max 50) frequent from 9 Sep to 12 Nov.

TAWNY PIPIT *Anthus campestris* Bilblun

1977 : Single figures on 15 days from 3 Apr to 17 May, with most in Apr. In autumn 1 on 25 Aug, then almost daily from 2nd to 18 Sep, always in single figures. 1 on 2nd and 6 on 15 Oct.

1978 : Single figures, max 8, on 11 days from 24 Mar to 24 Apr. In autumn up to 6 on 14 days from 29 Aug to 24 Sep.

OLIVE-BACKED TREE PIPIT *Anthus hodgsoni* Diżż ta' l-Indja

1977 : 1 trapped and ringed at Għadira on 30 Oct. (Il-Merill 19 : 11).

TREE PIPIT *Anthus trivialis* Diżż

1977 : 1-2 on 3 days from 14 Mar, then daily from 26th to 17 May. Low double figures recorded till 17 Apr, then treble figures in various localities on 18-23 Apr, with max of 500+ at Mellieħa on 20 Apr. Numbers reduced to low double figures again after 24 Apr. Only single figures in May. In autumn 1-2 on 5 days from 17th to 28 Aug, 10 on 31 Aug, then almost daily from 3 Sep to 15 Nov. Single to very low double figures, but 50+ at Marsa on 1 Oct. 1 at Għadira on 4-5 Dec.

1978 : Almost daily from 15 Mar to 6 May, then occasional to 27 May. Max was 128+ on 20 Apr. Regular, but in smaller numbers, from 23 Aug to 24 Oct with max of 27 on 16 Sep. Singles on 8th and 12 Nov.

MEADOW PIPIT *Anthus pratensis* Pespus

1977 : Low double figures in most localities during Jan-Mar. Return passage evident only by slight increase to medium double figures on 14-19 Mar. In April, single figures to 23rd. Again from 14 Oct till year end; usually double figures but treble figures on 3 days in late Nov, max 150+ at Mellieħa on 22nd.

1978 : Medium double figures in most places in Jan-Apr to 7th, with marked increase in the latter half of Mar. In same numbers from 22 Oct onwards, with frequent passages in Nov.

RED-THROATED PIPIT *Anthus cervinus* Diżż Aħmar

1977 : Singles on 4th and 26 Jan and on 27 Feb, and on 15 days from 13 Mar to 20 Apr, after which day recorded in low double figures on 8 days till 7 May. 1-5 on 4 other days till 17 May. Max was 30+ at Marsa on 21-22 Apr. In autumn frequent from 1 Oct to 6 Nov, mostly in single to very low double figures, max 25+ at Marsa on 20 Oct. 1 at Marsa on 29 Dec.

1978 : On 7 days in Apr from 3rd to 29th, with max of 9 on 16th. 1 on 10 Nov was the only autumn record.

ROCK/WATER PIPIT *Anthus spinoletta* Diżż ta' l-Ilma

1977 : Good year with 1-3 recorded on 9 days from 26 Oct to 11 Nov. All records from Marsa and Rabat.

YELLOW WAGTAIL *Motacilla flava* Isfar

1977 : 5 on 13th, then daily from 18 Mar to 10 May. Medium to high double figures on most days but treble figures on 31 Mar-1 Apr (max 600+ at Marsa) and on 18-23 Apr with peak on 21st (treble figures recorded from many localities). Single to very low dou-

ble figures on 9 days from 14 May to 5 Jun. Singles on 11th and 22 Jun and on 28-29 Jul. In autumn almost daily from 7 Aug to 29 Oct, usually in small numbers but low treble figures at roosts, max ca. 120 at Lunzjata on 8 Oct.

1978 . 1 at Marsa on 2nd and 5 Jan. Spring passage from 7 Mar to 14 May with max of 450+ on 6 Apr. At least two different birds on 6 days between 28 May and 27 Jul. In autumn on most days from 10 Aug to 25 Oct with max of 230+ on 14 Sep.

GREY WAGTAIL *Motacilla cinerea* Zakak tad-Dell

1977 : Single figures in some areas in Jan-Mar to 11th. 1 stayed at Marsa till 24 Apr. Autumn passage from 9 Sep; recorded always in single figures except for 15+ at Rabat on 22 Oct and 20+ at Lunzjata on 27 Nov.

1978 : Single figures in suitable localities in Jan-Mar to 5th. Then again from 16 Sep onwards with low double figures in Oct, max 27 on 22nd.

WHITE WAGTAIL *Motacilla alba* Zakak Abjad

1977 : Single to low double figures recorded in Jan-Mar, but 60+ at Marsa on 29 Jan and treble figures at the Valletta and Marsa roosts. Last seen on 2 Apr. In autumn few from 2nd then daily from 14 Oct till year end. Low double figures in many localities during Oct and mid-Nov, but 80+ at Paola on 28 Oct. 700+ were counted at the Marsa roost on 23rd and 25 Dec.

1978 : Daily in Jan-Mar to 30th, then singles till 19 Apr. Up to 800 counted at the Marsa roost. 2 on 14 Sep, then from 7 Oct onwards. Ca. 350 were found to be roosting at Lunzjata in Nov.

WREN *Troglodytes troglodytes* Bumistur

1978 : 1 at Lunzjata on 2 Dec.

DUNNOCK *Prunella modularis* Żiemel

1977 : Low single figures in Jan-Mar but up to 10 at Buskett. Last recorded on 11 Apr. In autumn first on 15 Oct, then daily till year end. Mainly in single figures.

1978 : Low double figures (max 35) in Jan-Mar to 28th. In autumn from 11 Oct onwards, with up to 60 at Buskett.

RUFOUS BUSH CHAT *Cercotrichas galactotes* Rożinjol tax-Xagħri

1977 : 2 at Dwejra, Gozo on 22 May.

1978 : Singles at Sta. Luċia on 8th and at Wied il-Luq on 14 Apr.

ROBIN *Erithacus rubecula* Pitirross

1977 : Double figures in Jan-Feb withup to 100 at Buskett. In Mar single figures daily till 20th, but double figures still present at Buskett. 1-2 throughout Apr-May. Few present throughout summer (up to 3 at Buskett). First passage migrant on 7 Sep with low double figures recorded till 14 Oct and then high double to low treble figures on most days till end of month. Max 300+ at Buskett on 21st. Low double figures throughout most of Nov and Dec. A totally albino bird was caught at Buskett on 25 Oct.

1978 : Double figures in most places in Jan-Mar with max of 230 at Buskett. Few migrants till 14 Apr, then seen on several days in May-Aug, mainly singles at Buskett and Girgenti. In increasing numbers from September onwards with max of 300+ at Buskett on 15 Nov.

NIGHTINGALE *Luscinia megarhynchos* Rożinjol

1977 : 1-5 on 8 days from 11th to 28 Mar, then daily from 30 Mar to 28 Apr. Mainly single figures but low double figures at Buskett/Girgenti in mid-Apr, highest 20+ on 13th and 16th. 1-5 on 6 days from 4th to 14 May. 1-2 at Wied il-Luq on 12 Jun and on 10-24 Jul. In autumn almost daily from 17 Aug to 5 Oct. Low double figures between 28 Aug and 9 Sep, otherwise always in single figures. Max 25+ at Wied il-Luq on 29 Aug. 1 on 19 Oct.

1978 : First on 18 Mar, then single or low double figures on most days till 26 Apr, with max of 42 on 2nd. Scattered singles in May to 20th. 1 was singing at Buskett on 4 Jun. In autumn after 1 on 12th, almost daily from 22 Aug to 17 Sep, then scattered sightings till 6 Nov. Max 22 at Wied il-Luq on 3 Sep.

BLUETHROAT *Luscinia svecica* Kudirross Blu

1977 : Singles at Bañrija on 1st, at Għadira on 18th and at Rabat on 25 Oct, and at Buskett on 24 Nov.

1978 : Singles on 23 Mar and 8-9 Apr, at Lunzjata.

BLACK REDSTART *Phoenicurus ochruros* Kudirross Iswed

1977 : 1-5 in suitable localities from Jan till 11 Mar. In autumn first on 15 Oct, then almost daily from 21 Oct till year end. Always in single figures but ca. 10 at Mellieħa on 4 Dec.

1978 : Low single figures in several places in Jan-Mar to 26th. Late bird on 7 Apr. In

larger numbers (max 8) from 5 Oct onwards.

REDSTART *Phoenicurus phoenicurus* Kudirross
1977 : 1 on 25 Mar, then low single figures almost daily from 1 Apr to 22 May, highest 5+ at Xemxija on 23 Apr. In autumn daily from 5 Sep to 23 Oct; single to very low double figures, highest 30+ at Wied il-Luq on 1 Oct. 1-2 on 28 Oct and on 6-7 Nov.
1978 : Single or low double figures daily from 1 Apr to 5 May with max of 60+ on 23rd. In autumn singles on 4 days from 24 Aug to 3 Sep, then almost daily from 16 Sep to 22 Oct; always single figures. Late birds on 2nd, 6th, 19th and 26 Nov.

WHINCHAT *Saxicola rubetra* Buċaqq tas-Silla
1977 : 1-5 on 5 days from 28 Mar to 13 Apr then almost daily from 17 Apr to 19 May. Single to low double figures but treble figures (max 200+ at Mal Far) on 22-23. In autumn 1-2 on 15 scattered days from 5 Sep to 16 Oct.
1978 : Low double figures from 8 Apr to 13 May but with 75+ on 23 Apr. In autumn 1-5 on 11 days from 9 Sep to 15 Oct.

STONECHAT *Saxicola torquata* Buċaqq tax-Xitwa
1977 : Single to low double figures in Jan-Feb, numbers greatly reducing from mid-Feb. 1-2 on 5-6th and 18 Mar. In autumn 1-2 at Għadira on 19th and 26 Sep, then daily from 1 Oct till year end. Low double figures frequent between 9 Oct and 13 Nov, max 30+ at Marsa on 25 Oct.
1978 : Single figures, but occasionally up to 18, in most places in Jan-Mar to 16th. 1 on 16 Apr. Then again from 23 Sep onwards with the highest numbers in late Oct-early Nov, when up to 35 in some areas.

ISABELLINE WHEATEAR *Oenanthe isabellina* Kuda Iżabellina
1977 : Singles at Mal Far and Għajn Barrani on 7 Apr.
1978 : 1 at Xlendi on 14 Mar.

WHEATEAR *Oenanthe oenanthe* Kuda
1977 : 1 on 5th, then single to low double figures on most days from 16 Mar to 9 May, with max of 30+ at Ta' Ċenċ on 9 Apr. In autumn almost daily from 14 Aug to 23 Oct. Recorded in single to low double figures but ca. 65 were at Mal Far on 27 Aug.
1978 : From 26 Mar to 1 May (max 47 on 19 Apr) with late bird on 13 May. Smaller numbers in autumn from 12 Aug to 15 Oct, with max of 18 on 17 Sep.

BLACK-EARED WHEATEAR *Oenanthe hispanica* Kuda Dumnikana
1977 : Recorded only in spring : 1-5 in suitable localities on 6 days from 25 Mar to 9 Apr.
1978 : 1-4 on 7 days from 27 Mar to 23 Apr.

DESERT WHEATEAR *Oenanthe deserti* Kuda tad-Deżert
1977 : 1 seen at a taxidermist was caught on 24 Nov.

ROCK THRUSH *Monticola saxatilis* Ġanbublu
1977 : 3 on 7 Apr and 6 singles from 10 Apr to 7 May.
1978 : Singles on 5 days from 5th to 23 Apr.

BLUE ROCK THRUSH *Monticola solitarius* Merill
1977 : In usual numbers; mainly around coasts. Immature birds recorded inland on various occasions in Aug-Oct.
1978 : Resident and breeding in usual numbers. No apparent change in status.

RING OUZEL *Turdus torquatus* Malvizz tas-Sidra Bajda
1977 : Singles on 5 days from 4 Oct to 16 Nov.

BLACKBIRD *Turdus merula* Malvizz Iswed
1977 : 1-2 wintering in a few places till 11 Mar. Again 1-2 regularly from 14 Oct onwards.
1978 : Low single figures on most days in Jan-Mar to 26th, with max of 10 on 28 Jan. Then 1-2 on 14 days from 22 Oct till year end.

FIELDFARE *Turdus pilaris* Malvizzun tal-Qtajja'
1977 : 1-2 on 10 days from 11 Nov to 5 Dec, and 1 on 30 Dec.
1978 : 2 at Buskett on 5 Feb and 1 at Sarnat on 18 Nov.

SONG THRUSH *Turdus philomelos* Malvizz
1977 : 10-20 at Buskett in Jan-Mar, otherwise single figures in other localities. 1-2 till 18 Apr. 1 at San Anton Gardens on 10 Aug could have been an escaped bird. In autumn singles on 16th and 30 Sep and on 1st and 8-9 Oct, then double to low treble figures 14 Oct till end of month. Highest 200+ over Mellieħa on 19th. Only single to low double figures (max 15) in Nov-Dec.
1978 : Single or low double figures (max 22) almost daily in Jan-Mar, with a few singles or twos till 23 Apr. Singles in different localities on 21 Aug and 9-10 Sep. High

double figures frequent from 11 Oct onwards, max 217+ on 4 Nov.

REDWING *Turdus iliacus* Malvizz Aħmar
1977 : 1-3 present at Buskett and Girgenti and sometimes at Xemxija in Jan-Mar to 27th. Low numbers in autumn from 4 Nov till year end. Max ca. 15 at Buskett /Girgenti on 20 Nov, 20th and 30 Dec, otherwise single figures.
1978 : On most days in Jan-Mar to 19th. Usually single figures but 26 on 28 Jan. On 11 days from 18 Nov to 31 Dec; usually 1-2 but 23 on 3 Dec.

MISTLE THRUSH *Turdus viscivorus* Malvizzun Prim
1977 : Singles at Rabat on 14th and at Mellieħa on 21 Oct; 1-2 at Buskett on 11-12th and 3 at Marsa on 13 Nov.
1978 : 1 at Buskett on 11 Nov.

CETTI'S WARBLER *Cettia cetti* Bagħal tal-Għolliq
1977 : Breeding restricted mainly to usual areas due to particular habitat preference. Adults and young were seen at Għajn Barrani in late Jul-early Aug. Seen also during the breeding season at Rabat and Chadwick Lakes but breeding was not confirmed.
1978 : Breeding in usual numbers in usual areas. Larger numbers in Jul-Sep after dispersal of young.

FAN-TAILED WARBLER *Cisticola juncidis* Bagħal ta' l-Imrewħa
1977 : Still spreading and bred in new areas. Up to 40 roosted at Għadira in Sep.
1978 : Breeding recorded in several new areas. Most conspicuous in Mar-Jul when male song is most intense.

SAVI'S WARBLER *Locustella luscinioides* Bagħal Aħmar
1977 : Singles at Sta. Maria Estate on 25 Mar and at Xemxija on 2-3 Apr.
1978 : Singles on 2nd and 11 Apr; 20 Aug; 4th, 11th and 12 Sep. Most at Buskett/Girgenti.

MOUSTACHED WARBLER *Acrocephalus melanopogon* Bagħal Qastni
1977 : 1-3 at Lunzjata from 2 Nov to 9 Dec; singles at Għadira on 13 Nov and at Wied il-Luq on 20 Dec.
1978 : Singles at Xemxija on 12th and 18 Nov and at Girgenti on 18 Nov and 2 Dec.

SEDGE WARBLER *Acrocephalus schoenobaenus* Bagħal tas-Simar
1977 : 5 on 27 Mar, then frequent from 6 Apr to 1 Jun with most from mid-Apr to mid-May. Max 16+ at Lunzjata on 20 Apr. In autumn 1 on 5 Aug, then 1-2 on 13 scattered days from 4 Sep to 23 Oct.
1978 : On most days, mainly in single figures, from 5 Mar to 27 May, with max of 32 on 30 Apr. 1 on 22 Aug, then singles on 5 days from 1 Oct to 1 Nov.

REED WARBLER *Acrocephalus scirpaceus* Bagħal tal-Qasab
1977 : 1-2 on 9 days from 20 Apr ro 1 Jun. First breeding record for Malta, with family party (adults and 4 newly fledged young) at Salina on 26 Jul. They were last seen together on 30 Jul (Il-Merill 19:13). In autumn singles on 23rd and 30-31 Jul, then almost daily from 4 Aug to 22 Sep; always single figures except for 15+ at Girgenti on 28 Aug. Then on 5 days from 25 Sep to 10 Oct with 6+ still present at Girgenti on 5 Oct.
1978 : 1 on 17 Mar, then 14 sightings of 1-3 birds between 8 Apr and 22 May. In autumn 1 on 23 Jul, then single figures (max 9) from 30 Jul to 11 Nov. Almost daily in Aug-Sep.

GREAT REED WARBLER *Acrocephalus arundinaceus* Bagħal Prim
1977 : Recorded frequently from 6 Apr to 1 Jun. Max 15+ at Lunzjata on 21 Apr, otherwise 1-4 In autumn single figures from 14 Aug to 15 Oct, mostly from late Aug to mid-Sep, highest 6+ at Girgenti on 23 Aug.
1978 : Single figures almost daily from 1 Apr to 1 May, then 1-2 on 6 days till 3 Jun. Singles on 1st and 30 Jul, In autumn 1-3 on several days from 12 Aug to 23 Oct.

ICTERINE WARBLER *Hippolais icterina* Bekkafik Isfar
1977 : 1 on 18 Apr, then recorded frequently in May till 29th. Always in single figures except for ca. 10 at Valletta on 17th. In autumn, 1-2 on 9 widely scattered days from 14 Aug to 4 Oct.
1978 : 1 on 19 Apr, then single figures almost daily from 28 Apr to 15 May with max of 10 on 13th. In autumn 1-2 on 10 days from 20 Aug to 17 Oct.

MELODIOUS WARBLER *Hippolais polyglotta* Bekkafik ta' l-Għana
1978 : Singles at Għadira on 15 Apr and at Buskett on 2 May.

DARTFORD WARBLER *Sylvia undata* Bufula tax-Xagħri
1977 : 1-2 at Għadira in Jan-Feb and 1 still there on 3 Apr. 1 at Mellieħa on 27 Oct and 1-2 at Ta' Ċenċ from 2-5 Nov; singles at Victoria on 1 Dec and again at Mellieħa on 22 Dec. 1 at Għadira from 6 Nov till year end.

1978 : Singles seen on 14 January, 12th and 22 Feb, and 2+ on 26 Feb at Għadira.

SPECTACLED WARBLER *Sylvia conspicillata* Bufula Ħamra
1977 : Common only in suitable areas. Young seen out of nest from late Mar. Highest for any one locality was ca. 40 at Tal-Ħandaq on 8 Jun.
1978 : Recorded in usual numbers with no indication of passage.

SUBALPINE WARBLER *Sylvia cantillans* Bufula Passajra
1977 : Spring passage from 6 Mar to 26 Apr, mainly late Mar to mid-Apr. Always in single figures except for 15+ at Xagħra on 23 Mar and 10 at Salina on 23 Apr. 1 on 10 May. Autumn passage, first on 3 Jul then daily from 10 Jul to 19 Sep. Low to medium double figures at Wied il-Luq from 16 Jul to 18 Sep, highest 50+ on 22-22nd and 60+ on 29 Aug, otherwise always in single to very low double figures in other localities Then 1-5 on 6 days from 24 Sep to 4 Oct.
1978 : Singles on 7th and 15 Mar, then almost daily from 24 Mar to 23 Apr with max of 54 on 2 Apr. 1 on 1 May. Autumn passage from 11 Jul to 29 Oct, but mainly in Aug-Sep when seen daily in double figures. Max 53 on 3 Sep.

SARDINIAN WARBLER *Sylvia melanocephala* Bufula Sewda
1977 : Very common almost everywhere. Evidence of a return passage in late Feb-early Mar (Il-Merill 19:18-19). 60+ at Tal-Ħandaq on 8 Jun was the highest count for any one locality.
1978 : Common everywhere throughout the year.

ORPHEAN WARBLER *Sylvia hortensis* Bekkafik t'Għajnu Bajda
1978 : 1 at Wied Żnuber on 7 Apr.

LESSER WHITETHROAT *Sylvia curruca* Bekkafik Irmiedi
1977 : 1 at Għadira on 8 May. Singles at Wied il-Luq on 13th and 25 Sep and on 1 Oct.
1978 : Singles at Għadira on 8th and at Marsa on 12 Oct.

WHITETHROAT *Sylvia communis* Bekkafik Aħmar
1977 : 1-6 recorded frequently from 3rd to 20 Apr, then up to 10 in some localities on 21-23 Apr, numbers reducing to low single figures till 9-10 May when 10+ seen at Buskett. 1-5 from then till 26 May. In autumn singles on 8 scattered days from 2 Sep to 16 Oct, most in Sep.
1978 : Seen on several days from 2 Apr to 15 May; mainly single figures but 23 on 29 Apr. In autumn singles on 19th, 24th and 26 Aug, then 1-3 on 6 days from 7 Oct to 6 Nov.

GARDEN WARBLER *Sylvia borin* Bekkafik
1977 : Single figures frequent from 18 Apr to 29 May (max 10+ at Buskett on 10th and 22 May) 1 singing at Wied il-Luq on 11th and 1 at Lunzjata on 16 Jun. In autumn 1 on 17 Aug, then almost daily from 20 Aug to 23 Oct with peak from mid-Sep to early Oct. Max 40+ at Wied il-Luq on 18 Sep.
1978 : Spring passage from 8 Apr to 28 May with most from mid-Apr to mid-May when seen almost daily. Mainly single figures but 31 on 28 Apr. In autumn medium double figures on most days from 15 Aug to 22 Oct with max of 60 on 10 Sep. 1 on 6 Nov.

BLACKCAP *Sylvia atricapilla* Kapinera
1977 : Treble figures at Buskett in Jan-Mar with usual peak in mid-Mar (800+ on 11th). Recorded frequently from other localities in single to low double figures. 1-3 present in Apr to 23rd. Frequent, mainly in single figures, from 16 Sep till year end with low double figures from very few areas. Highest 20+ at Girgenti on 26 Dec.
1978 : Medium treble figures at usual places in Jan-Mar with a peak in Mar; max 1000+ at Buskett on 11th. Few till 23 Apr. Again from 1 Oct onwards, reaching high double figures in early Dec.

BONELLI'S WARBLER *Phylloscopus bonelli* Vjolin Bajdani
1977 : Single on 11 days from 23 Mar to 3 May, but a total of 4 recorded on 12 Apr.
1978 : 11 sightings of 1-3 birds from 26 Mar to 23 Apr. 1 on 23 Aug.

WOOD WARBLER *Phylloscopus sibilatrix* Vjolin Ħadrani
1977 : Single figures from 23 Mar to 9 Apr, reaching low double figures from 10 Apr to 15 May. Good days on 21-23 Apr with double figures from many localities (max 50+ at Xemxija). Numbers reduced to single figures from 16th till 26 May. In autumn 1-3 on 15 days from 5 Sep to 14 Oct.
1978 : Single or low double figures almost daily from 1 Apr to 13 May with max of 37 on 23 Apr. 1 on 12 Aug, then from 24 Aug to 22 Oct. Only low single figures but 13 on 12 Oct.

CHIFFCHAFF *Phylloscopus collybita* Vjolin tax-Xitwa
1977 : Very common from Jan to mid-Mar when numbers decreased considerably. Monthly peaks were : 400+ at Lunzjata in mid-Jan, 100+ at Marsa on 11 Feb, and 50+ at Marsa on 5

Mar. Then 1-5 till 6 Apr and 1 at Lunzjata on 7 May. In autumn single figures from 8th to 27 Oct, then double figures almost daily reaching treble figures in some areas by the end of Nov (max 200 at Marsa on 28th). Double figures in various localities in Dec with treble figures only at Lunzjata (max 250+ on 27 Dec).

1978 : High double figures in most places in Jan-Apr to 7th, then 1-3 on 8 days till 23 Apr. Max was 410+ on 7 Jan. Again from 17 Oct onwards with max of 100 on 25 Nov.

WILLOW WARBLER *Phylloscopus trochilus* Vjolin Pastard

1977 : 1-2 on 5 days from 18th to 27 Mar, then almost daily from 31 Mar to 10 May with max of 10 at Għadira and Comino on 6th and 17 Apr respectively. 1 on 15 May. 1-3 on 6 days from 18th to 28 Aug, then almost daily from 1 Sep to 23 Oct. 10-15 at Għadira on many occasions, otherwise single figures. 1 at Lunzjata on 4 Dec.

1978 : Almost daily from 23 Mar to 3 May with max of 65+ on 9 Apr. In autumn recorded from 13 Aug to 17 Oct; usually single figures, but 25+ on 1 Oct. 1 on 5 Nov.

GOLDCREST *Regulus regulus* Bufula tal-Qamar

1977 : Very few specifically identified : singles on 5 days from 25 Oct to 16 Nov.

1978 : Only a few recorded : low single figures in Jan-Mar to 24th, 3 on 18 Oct and 1 on 2 Dec.

FIRECREST *Regulus ignicapillus* Bufula tat-Toppu Aħmar

1977 : Low single figures in suitable places in Jan-Feb, then 1-3 on 6 days from 18 Oct to 19 Nov.

1978 : Low single figures in Jan-Mar to 24th and from 15 Nov onwards.

GOLD/FIRECREST *Regulus regulus / ignicapillus*

1977 : Up to 10 in suitable localities in Jan-Feb numbers greatly reduced by mid-Feb. 1-3 on 3 days in Mar to 28th. In autumn 1-5 from 1 Oct till year end but ca. 20 at Miżieb on 19 Nov.

1978 : Single figures and occasionally up to 10 in suitable localities in Jan-Mar to 27th and from 16 Oct onwards.

SPOTTED FLYCATCHER *Muscicapa striata* Żanżarell tat-Tikki

1977 : 1 on 20th, then up to 10 from 21 Apr to 14 May, but 30+ at Hal Saflieni on 10th and 15+ at Pietà on 12 May. Large influx, affecting mainly the SE of Malta on 15 May when treble figures recorded from 3 localities with max 500+ at Wied Żnuber (Il-Merill 19:16-17). Numbers dwindled to single figures by 19 May. 1-3 till 9 Jun. An unmated female laid two consecutive clutches in the same nest at Buskett and was regularly observed incubating between 26 May and 9 Jul (Il-Merill 19:24). In autumn 1-4 on 12 days from 27 Aug to 28 Sep, then high single figures daily till 10 Oct (max 10 at Buskett on 3rd); 1-3 on 4 days from 12th to 23rd and 7 at Birkirkara on 28 Oct.

1978 : Almost daily from 19 Apr to 14 May, then occasional singles till 1 Jun. Max was 50+ on 28 Apr. An unmated female was first seen incubating in the previous year's nest on 27 May, and was joined by a male on 7 Jun. The 4 infertile eggs were removed from the nest on 14 Jun when the female was still incubating them. The same pair, and possibly two pairs, then bred in the vicinity, recently fledged birds being seen on 23 Jul and 15 Aug (Il-Merill 20:24). Autumn passage from 13 Aug to 15 Oct; only medium single figures. Singles on 1st and 6 Nov.

RED-BREASTED FLYCATCHER *Ficedula parva* Żanżarell Sidru Aħmar

1977 : 1-4 on 13 days from 11 Sep to 15 Oct, most records from Buskett/Girgenti area.

1978 : Singles at Lunzjata on 14 Sep, at Għadira on 13th, 15th and 17 Oct, and at Xemxija on 15 Oct.

COLLARED FLYCATCHER *Ficedula albicollis* Żanżarell tal-Kullar

1977 : Singles on 16 Mar and 3 Apr, then daily from 6th to 24 Apr (max 6 at Rabat on 7th) followed by 1-2 on 9 days from 27 Apr to 12 May.

1978 : 12 sightings of 1-4 birds on 7 days between 14th and 26 Apr.

PIED FLYCATCHER *Ficedula hypoleuca* Żanżarell Iswed

1977 : 1 on 31 Mar then from 5 Apr, reaching double figures by 10th. Max 50+ at Marsa and Pietà on 21st. Numbers reduced to low double or single figures after 24th. Last seen on 15 May. Very few in autumn : 1-2 on 12 scattered days from 20 Aug to 16 Oct.

1978 : Daily from 1 Apr to 3 May with a peak in the latter half of Apr. Max 60+ on 19th. 1 on 13 May. In autumn singles on 13 days from 28 Aug to 3 Oct.

GOLDEN ORIOLE *Oriolus oriolus* Tajra Safra

1977 : Spring passage from 15 Apr to 29 May with double figures from 20th to 26 Apr (max 30+ at Chadwick Lakes on 21st), otherwise recorded mainly in single figures. 1-4 recorded in Jun to 19th and 1 was at Chadwick Lakes on 8 Jul. In autumn 1-7 on 15 days from 25 Aug to 20 Oct, most in early Sep.

1978 : Single to low double figures frequent from 2 Apr to 7 May with max of 50+ on 23 Apr. 1 on 26 Jun. In autumn only seen in single figures from 23 Aug to 15 Sep, with max of 10+ on 2 Sep.

RED-BACKED SHRIKE *Lanius collurio* Kaċċamendula Ħamra
1977 : 1-2 on 16 days from 31 Aug to 9 Oct.
1978 : Singles on 7 days in Sep from 2nd, on 13th, 21st (2) and 25 Oct, and on 26 Nov.

LESSER GREY SHRIKE *Lanius minor* Kaċċamendula Griża
1977 : 1 at Għadira on 23 Apr.

GREAT GREY SHRIKE *Lanius excubitor* Kaċċamendula Griża Prima
1978 : 1 at Marsaxlokk on 24 Apr.

WOODCHAT SHRIKE *Lanius senator* Kaċċamendula
1977 : Singles on 28th and 31 Mar. Frequent from 7 Apr to 7 Jun, always in low single figures but 6+ at Pieta on 28th and 6 at Sta Luċia on 29 Apr. 1 male at Wardija on 10 Jul. In autumn 1-2 on 10 days from 16 Aug to 23 Sep, most from late Aug to early Sep.
1978 : On several days from 26 Mar to 1 May; low single figures except for 13 on 23 Apr. Singles on 10th and 26 May. In Jun, 1 at Wardija on 3rd and 1 at Għadira on 26th and 30th. In autumn 1-2 on 13 days from 15 Aug to 14 Sep.

STARLING *Sturnus vulgaris* Sturnell
1977 : Low double figures in Jan-Feb, numbers reducing greatly after mid-Feb. On 5 days in Mar to 25th and singles at Marsa on 8-9 Apr. In autumn 19 on 26th and 3 on 28 Sep, then daily from 1 Oct. Treble figures reached on 14 Oct. Largest flocks were of 1500+ over Paola on 31 Oct and over Marsa on 6 Nov. Numbers reduced from mid-Nov but treble figures remained in some areas till year end.
1978 : Double figures and up to 800 in some areas in Jan-Feb, numbers greatly reducing in early Mar. Last seen on 27th. Singles on 21 Apr and 22 May. Larger numbers on autumn passage from 2 Oct when frequently up to 2000. Max was 3150 on 7 Nov.

ROSE-COLOURED STARLING *Sturnus roseus* Sturnell Roża
1978 : 1 was shot on 28 Aug.

SPANISH SPARROW *Passer hispaniolensis* Għammiel tal-Bejt
1977 : Abundant everywhere. A nest containing 3 young was recorded at Victoria in mid-Nov.
1978 : Abundant breeding resident.

TREE SPARROW *Passer montanus* Għammiel tas-Siġar
1977 : Small numbers breeding in several areas. Autumn passage mainly in October with double figures (max 50) recorded from some localities on 22-23 Oct.
1978 : Single figures present in various localities throughout the year. Bred as usual but no evidence of autumn passage.

CHAFFINCH *Fringilla coelebs* Sponsun
1977 : Single to low double figures (max 50) in several localities in Jan-Mar. In smaller numbers in Apr and very few in May. 1-3 in Jun-Sep, mainly at Buskett where 3 females/juveniles seen together on 2 Jul indicate breeding. In autumn low to medium double figures from 14 Oct. Up to 10 wintering in several localities till year end.
1978 : Low double figures in Jan-Apr to 8th with max of 100+ on 2 Mar. Several scattered records of 1-2 birds between mid-Apr and mid-Aug, mainly at Buskett where possibly bred. Numbers increased after mid-Aug reaching high double figures in Oct. Max count was of 500+ in Gozo on 13 Nov.

BRAMBLING *Fringilla montifringilla* Sponsun Selvaġġ
1977 : 1 male at Sliema on 29 Oct and 1 at Mellieħa on 1 Nov.

SERIN *Serinus serinus* Apparell
1977 : Low double figures (max 30) till 20 Jan, heavy passage in late Jan with high double to low treble figures recorded mainly from Rabat/Buskett area. Numbers reduced again to low double figures in Feb and single figures in Mar. Up to 5 recorded on various days in Apr and singles on 5 days in May. Family party (adults + at least two juvs) at Buskett in Jun-Aug. Singles in a few other localities during summer but up to 5 at Girgenti in Aug. 1-3 in Sep but first true autumn migrants probably on 7 Oct when 4 at Marsa. Very poor autumn migration: single to very low double figures only recorded, max 25+ at Pietà on 17 Dec.
1978 : Low double figures from Jan to mid-Mar but with max of 75+ on 7 Jan. Single figures till 4 May. 2-3 at Lunzjata throughout Aug, then low single figures on 10 days from 11 Nov to 24 Dec.

GREENFINCH *Carduelis chloris* Verdun
1977 : Frequent in Jan with up to 30 at Rabat and at Victoria on 2nd and 20th respectively. Then on 4 days in Feb to 21st, 1-5 on 8 days from 5 Mar to 12 Apr and singles on 1 May, 4 Jun, 16th, 29th and 31 Jul, on 6 days in Aug (but 3 on 28th), and on 6 days in Sep. In autumn single figures from 2 Oct with small passages on 22nd (max 40+ at Mellieħa) and 25 Oct (max 25+ at Anchor Bay), then again in low single figures on

scattered days till year end.

1978 : Low double figures frequent in Jan-Apr to 14th with passages in Gozo on 2nd and 31 Mar when 40+ and 150+ respectively seen. 1 on 14 Sep, then single figures again frequent from 6 Oct to 4 Nov.

GOLDFINCH *Carduelis carduelis* Gardell

1977 : Frequent in Jan to 26th. Low double figures recorded on various days and a small passage on 10th. Highest was 20+ at Rabat on 14th. Then 6 on 20 Feb, 3 on 12 Mar, 2 on 5 Apr and 1 on 7 May. In autumn 1-2 on 4 days from 6th to 27 Oct. No records in Nov but some present in Dec with a good passage recorded at Sannat on 8th and in single figures on 5 days, highest 10 at Ġebel Ċiantar on 20th.

1978 : 1-3 on 6 days from 1 Jan to 7 Feb, then singles on 5 Mar, on 5 days in Apr to 26th, on 3 Jun and on 17th, 21st and 25 Aug. Passage on 8 Nov when 150+ seen, then only 2 on 11th and 1 on 12 Nov.

SISKIN *Carduelis spinus* Ekru

1977 : Singles at Rabat on 4 May and at Wied il-Luq on 17 Jul. Autumn passage very poor : on 6 days from 19 Oct to 2 Nov; single figures but 10+ at Mellieħa on last date. 1 on 4 Dec.

1978 : 1-2 on 5 days from 28 Jan to 5 Feb and singles on 7th and 22 Oct.

LINNET *Carduelis cannabina* Ġojjin

1977 : Double figures in many areas during Jan, treble figures recorded at roosts (up to 1000+ at Victoria during week following 20th). Heavy passage recorded on 25th. Numbers remained high in Feb with treble figures on 6 days (mainly at roosts). Single to low double figures during Mar but 80+ from 2 localities on 18th. Single to very low double figures in Apr and 1-2 on 3 days in May to 15th. Singles at Rabat on 10 Jun and at Pieta on 3 Jul and up to 5 at Ghajn Barrani in Aug-early Sep. At least 2 juvs were seen there on 17 Aug. Singles on 16 Sep, 2nd and 14 Oct, then almost daily in double to low treble figures from 16th to 23 Oct after which numbers reduced and only treble figures at roosts.

1978 : Treble figures (max 250) on a number of days in Jan-Mar, then low single figures till 4 May. Scattered records of up to 10 (probably breeders) in Jun-Sep. Double figures on most days from 6 Oct onwards but 500+ in Gozo on 13 Nov.

CROSSBILL *Loxia curvirostra* Kruċjat

1978 : 1 at Buskett on 22-23 Jul.

TRUMPETER FINCH *Bucanetes githaginea* Trumbettier

1977 : 1 at Ta' Ċenċ on 11 Jun and 30+ at Kerċem/Xlendi area at the end of Jun.

SCARLET GROSBEAK *Carpodacus erythrinus* Bumunqar

1977 : 1 at Ramla Valley on 9 Oct.

HAWFINCH *Coccothraustes coccothraustes* Taż-Żebbuġ

1977 : Singles at Pietà on 3 Mar and at Lunzjata on 12 Apr, then 1-2 at Xagħra from 24th to 29 Oct.

1978 : 1 on 7 Jan; 1 on 20th and 2 on 21 Oct; and 1 on 3 Nov.

ORTOLAN BUNTING *Emberiza hortulana* Ortolan

1977 : Singles on 22 Mar and on 5 Apr, then small influx in Gozo on 23-24 Apr. 1 at Għadira on 9 Sep and some present at the end of Sep.

RUSTIC BUNTING *Emberiza rustica* Durrajsa Qastnija

1977 : 1 trapped and ringed at Lunzjata on 21 Oct.

1978 : 1 trapped at Marnisi in Oct and 1 at Delimara on 30 Nov.

LITTLE BUNTING *Emberiza pusilla* Durrajsa Qerqnija

1977 : Singles near Delimara on 6th and 16 Oct.

1978 : Singles at Għadira on 2nd and at Marnisi on 23rd and 25 Oct.

YELLOW-BREASTED BUNTING *Emberiza aureola* Ortolan tal-Lvant

1978 : 1 imm. trapped and ringed at Rabat on 30 Sep.

REED BUNTING *Emberiza schoeniclus* Durrajsa tal-Qasab

1977 : Singles on 5 days at Lunzjata from 23 Oct to 11 Nov. 1-2 at Għadira on 12-13 Nov and singles at Miżieb on 19 Nov and at Marsaxlokk on 3 Dec.

1978 : 9 sightings of 1-5 birds from 22 Oct to 1 Dec. Most records from Għadira and Lunzjata.

CORN BUNTING *Miliaria calandra* Durrajsa

1977 : Breeding in usual numbers. Nests with eggs already found in late Mar. Large flocks in summer, highest 200+ at Għajn Riħana on 22 Jul. Few birds in October recorded in areas where they are not usually present indicate a small passage.

1978 : Bred as usual. In flocks of up to 90 in Jun-Sep.

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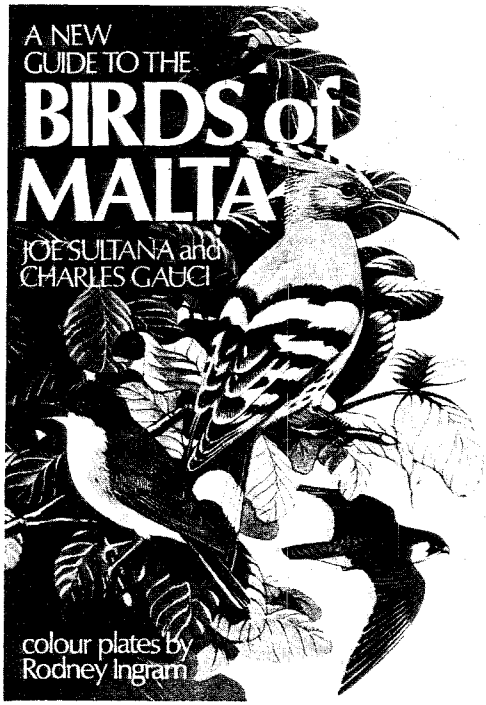

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