Il-Merill

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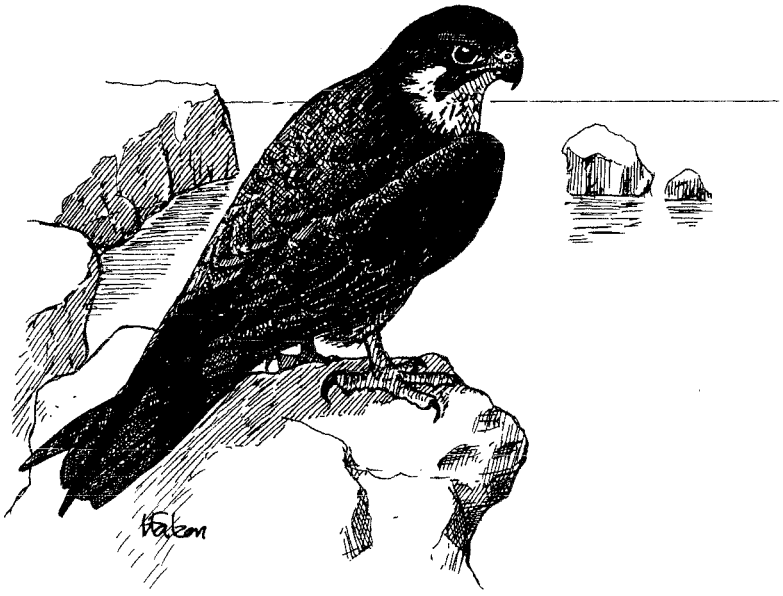
No. 28 **1992-1994**



Falco eleonorae

BirdLife MALTA MOS

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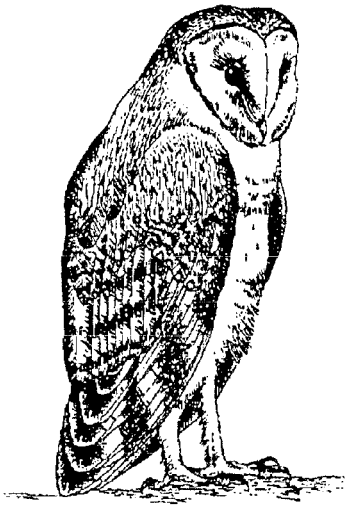
*The aim of **Il-Merill** is to serve as medium for the publication of the annual systematic list of birds recorded in the Maltese Islands as well as the annual ringing report, both produced by the Research Committee of BirdLife Malta MOS. The publication also includes papers and short notes primarily relating to bird study in the Maltese Islands. Accordingly the Editorial Board welcomes contributions treating any aspect of ornithology of the Maltese Islands and the Mediterranean, for publishing in this journal.*

For the sake of uniformity, authors submitting papers for consideration are requested to follow the following sequence: Title; name(s) of author(s); an abstract summarising the main results; address(es) of the author(s); introduction; methods used; results; discussions; acknowledgements; references. Tables and figures should be presented on separate sheets with their desired position indicated in the manuscript margin. Manuscripts should be typed in double-space on one side of the paper only, with a wide margin.



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In 1993 MOS became one of the first partners of BirdLife International (formerly ICBP), and following an Annual General Meeting in early 1995 the Society changed its name from MOS to BirdLife Malta MOS; the blue rock thrush silhouette logo was also replaced by the BirdLife tern silhouette. The changes in name and emblem have in no way affected the original aims of the Society, which remain the protection and study of wild birds and the natural environment.

MOS

BirdLife MALTA MOS

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BirdLife Malta MOS (formerly MOS - The Malta Ornithological Society) was founded in 1962 to promote the study and conservation of birds in Malta. It organises various activities for its members, ranging from the scientific to the popular, and publishes Birds' Eye View, the annual members magazine. BirdLife Malta MOS runs Falko for its youth members and Klabb Huttaf for the junior section. The Society also runs the Valletta Ringing Scheme. Subscription is Lm3 per annum. Anyone wishing to apply for membership is welcome to write to the Director.

DISTRIBUTION OF NON-BREEDING ELEONORA'S FALCON *FALCO ELEONORAE**

Dietrich Ristow & Michael Wink

Abstract

During spring migration of Eleonora's Falcon the species proceeds by about 300 km per day from the eastern to the western Mediterranean. Old falcons pair and occupy territories after arrival in April/May. As the breeding islands cannot support the population with food during the non-breeding months, the birds have to leave in the early morning to hunt on the nearest large island or mainland. Then they can be seen all over the Mediterranean and occasionally far inland. During the autumn breeding months the immature non-breeders are still distributed all over the Mediterranean. The breeding population and fledglings start their autumn migration in the second half of October via routes which are still unclear. From mid-October to mid-April the falcons can be seen in east Africa and Madagascar.

Introduction

The breeding range of Eleonora's Falcon *Falco eleonorae* is confined to the Mediterranean. The world population of approximately about 3000 pairs breeds primarily on small desolated islands. Whereas the breeding distribution is more or less known the occurrence of this bird during the non-breeding season is still unclear. Its migration habits, whether the species migrates across the sea, along shore-lines or across the desert to and from its east African wintering quarters, have not been investigated. This contribution presents the respective data available on this topic.

The implications from observations at the breeding colonies are summarized, followed by a discussion on the phaenological data for each country, beginning with countries in the west Mediterranean and ending with the wintering area around Madagascar in the east.

Material and Methods

Data were obtained by personal inquiries at international raptor conferences during the past five years, by correspondence with ornithologists and ornithological organisations in the Mediterranean countries, by an inquiry in *ICBP Newsletter* (1985) No. 2, in *Vogelwelt* (1986) 106 : 120, in *British Birds* (1987) 80 : 648, and from the available literature. Data from breeding colonies are primarily from a study of Aegean colonies which the present authors have been carrying out for more than ten years (Wink *et al.* 1982, 1985). For conservation reasons breeding locations are referred to by using the abbreviations given by Walter (1979a).

Implications from the data at the Breeding Sites

According to colour ringing studies most females begin to breed at the age of two and males at the age of three. The majority (>90%) of non-breeders is absent at the native colony from May until October, but they settle in the native colony in later years (Ristow *et al.* 1987). This fact about immature non-breeding falcons is also confirmed by recoveries of ringed birds. *Table 1* lists all recoveries of falcons ringed as nestlings in September on islet K8 near Crete. There are no recoveries of 1st and 2nd year old falcons in Crete, although there are several from all over the Mediterranean.

Although egg laying starts at the end of July, the falcons are present in the breeding colony from the end of April onwards. Many falcons returned to K5 every evening from 25.4. to 5.5.44 (Sielmann, in Stresemann 1956). They are paired and occupy territories within the colony. Pluckings picked up on K8 and especially on K12 indicate that the falcons can support themselves to some degree by catching spring passerine migrants, but depending on the continuity of the migrant flow the falcons' stay can be irregular. In June this food source definitely ceases. At K8, an island of 250 breeding pairs, 20-40% of the population are present on the island at the end of May, but usually only overnight. The first falcons depart 35-40 minutes after sunrise for the mainland to search for food, half of the falcons leave the island within the next hour, and the last individuals take off 4 hours after sunrise at the latest. The first birds return in the afternoon. The majority return by sunset, and a few individuals arrive even after dusk. In June the overnight population may shrink to less than 2%. In July the population is complete, but regular movements can be observed between the colony and the mainland, as there is still not sufficient food available on the island. The frequency of these movements declines substantially in August when the autumn passerine migration starts. In September and up to the mid-October there are normally no movements between island and mainland - except for windless days (Ristow *et al.* 1983) - because the adults and nestlings feed on migrant birds.

At all colonies 90% of the young can fly by the first week of October. The impression that all falcons had left K5 in the Aegean on 7.10.44 was perhaps not intended by the author (Sielmann, in Stresemann 1956), or was it a

*This paper forms part 17 of a series on Eleonora's Falcons. It is a revised version of a presentation at the 5th International Conference on Mediterranean Raptors in Evora, Portugal, September 1986.

windless day? At K8 they were still present on 14.10.71 (D. Ristow pers. obs.) and Cant (1978) saw more than 40 adults and fledglings at J23 on 21.10.77. In Sardinia about 20 adults and 13 fledglings were seen during an excursion to E9 on 13.10.84. In a small colony off Spain with 13 pairs at C1-C3, 6 fledged young were seen on 23.10.72 (Pechuan 1973). For Morocco, all adults and young were at B3 on 18.10.81 (Thevenot *et al.* 1982). Clark (1981) states for this country that post-fledglings are still supplied with food by the male, when the females have already left for migration, and Meinertzhagen (1940) noted there were mostly juveniles among 50 individuals at B2 on 26 .10.39. Independent juveniles feed on insects above the mainland (Clark 1981). As no better data are available when the young become independent and show up on the mainland, the middle of October may be a good guess, as could be implied from the observation of a sole juvenile in the Aegean Sea 9km away from the nearest island on 14.10.71 (D. Ristow pers. obs.).

To summarize these observations, one should expect to see the complete population of Eleonora's Falcon on the mainland or larger islands from April to July; later the immature non-breeders from August to October, and then the migrant falcons from the second half of October onwards.The available data for each country are compared hereunder with respect to these assumptions.

Data of Eleonora's Falcon at other than the Breeding Sites

The complete data as obtained from the inquiry and the literature are presented in the following list to indicate the status of knowledge for each country and to form the basis for future studies:

Libya

15.4.22 Benghazi (Hartert 1923).

Tunisia

60 breeding pairs. 1 at Le Kef on 31.10.75 (D. Schmidl). 3-15 counted each spring from mid-April onwards, migrating from Cap Bon to Sicily in the same manner as other raptors (Hein *et al.* 1995). The similarity with counts at the Straits of Messina is obvious (see Italy below).

Algeria

More than 100 pairs. 90 individuals at Phillieville on 16 May (Dixon 1882) and a year old falcon from K8 shot from a group of 2 at Chefka on 8.9.78.

Morocco

75 pairs at B2-B3. 15 individuals at Sai on 10.4.82 (Thevenot *et al.* 1983). Mean arrival 30 Apr (n=8) (Thevenot *et al.* 1981). Departure 29 Oct - 10 Nov. Single birds above the marshes at El Ksenba (1 km from the coast near Monlonya/Prov. Gujda) on 8.6.80 (M. Leconte), at Tifnit on 7.11.80 (U. Hirsch) and at Agadir on 13.11.82 (Thevenot *et al.*1983). No observations during survey of the Mediterranean coast (D. & S. Berthon).

Mali

A ring recovery of a 2 -year old bird at Doura on 7.3.89, ringed at A3 of the Canary Islands (Delgado & Quilis 1990).

Canary Islands

63 pairs determined in 1983 survey (Hernandez *et al.* 1985). 2 singles on Lanzarote in Aug 1985 (M. Nowak) and 10 drowned in a water reservoir near Hari/Lanzarote (G. Delgado).

Madeira

2 light morph adults - one with a few primaries missing, on Porto Santo along the coast at the main town on 18.8.87, and another with no primaries missing, in the strait between Ferro and the main island on 28.8.87 (M. & E.H. Jones).

Selvagem Island

2 singles from 9-14.6.85.

Portugal

Singles at Carrapateira on 4.9.81 (L. Palma), at Estoril on 5.8.85 (M. Vasconcelos Abreu), at Ponta da Piedade/Lagos on 12.9.85 (P. Harris), at Cabo de Bordeira on 22.9.85 (M. Bolton), at the Spanish border, north of Castelo de Vide on 27.9.86 (participants of the Evora Raptor Conference), at Benavente (immature) on 27.6.87 (C.C. Moore) and at Estoril on 28.8.87 (C.C. Moore).

Spain

For southern Spain and Gibraltar, the monthly frequency of observations as derived from Allen (1973), Thiollay (1974), Pineau & Giraud-Audine (1979), Bernis (1980), Cortes *et al.* (1980), E. Garcia (pers. comm.) and the records of the Gibraltar Natural History Society is given below:

M	A	M	J	J	A	S	O	TOTAL
1	6	1	1	3	15	14	12	53 observations

This shows a maximum from August until the first two weeks of October. Somewhat surprisingly, there is no record for the Marismas of the Guadalquivir (J. Castroviejo). The earliest and latest sightings are 28 Mar and 26 Oct respectively, with 5 on 14.4.75 and 6 on 10.10.76 with respect to flock size. An immature at Gibraltar on 24.8.84 (C. Perez. & R. Rutherford). There are two ringing recoveries of one-year old birds, one from B2

at Novaredonde on 16.9.61 (Terrasse 1963) and another from K8 at Azuqueca de Henares/Guadalajara on 26.8.89. A colony of 17-20 pairs exists on C1-C3 (Navarro *et al.*1986, Dolc *et al.* 1987) resulting in several sightings from northeastern Spain, 7 around Valencia and another 40 from Catalunya. Half of these have been recorded in the last six years (N. Dies, Ferrer *et al.* 1986, Ferrer pers. comm., Real *et al.* 1985, A. Sorolla) The monthly distribution is:

A	M	J	J	A	S	O	N	TOTAL
3	13	7	2	11	8	2	1	47 observations

These records are all of single individuals except for two observations with 2 birds each. In addition 2 individuals were unexpectedly seen at the Delta de l'Ebro on 1.1.87 (X. Jimenez Llobera & C. Exposito Miro), There are more spring observations than from the other parts of the Iberian peninsula.

Balearic Islands

Breeding population of about 300 pairs (Thiollay 1967, Mayol 1976, Araujo *et al.* 1977). Earliest arrival is 10 Apr (Hjortnaes-Thomson *et al.*1974), with mean of arrival 25 Apr (J. Mayol, J.F. Terrasse, E. Haertel, P. Marriott & P. Whitehead). Latest departure dates are 6 Nov and 9 Nov. The marsh area of Albufera is an important feeding area (Mayol 1976), with records of 30 on 26.5.72 (A. Lensch) and 49 on 9.5.82 (M. Kuhn). A Black Vulture *Aegypius monachus* was harassed by an Eleonora's Falcon at the Cuber River barrage on 14.9.83, an exceptional display so far away from the nest (H. Proske). 11 were also recorded at the Cuber barrage on 4.10.83 hawking for insects, settling on the banks to preen and wash at regular intervals (P. Marriott).

Great Britain

One at Formby, Merseyside on 8-9.8.77 (Copleston *et al.* 1980). The record at Erskine Bridge/Scotland on 18.8.80 (*Scottish Birds* (1980) 11 : 139) was apparently not accepted by the rarities committee. The second accepted record is a second-year bird found recently dead in North Humberside in early November (*British Birds* (1986) 79 : 206-207).

Sweden

Single birds at Öland on 17.7.83 (Briefe 1984) and at Lilla Karlsö/Gotland (dark morph) on 27-30.7.83 and (light morph) on 4.8.83.

Denmark

A record under review by the Danish Rarities Committee.

Poland

One adult at Leszo on 12.9.82 and an individual at Katowice on 22.9.84.

(Two recent cases are known when an Eleonora's Falcon escaped from captivity in Germany. So it may be queried if some of the above exceptional records could be similar cases).

France

The report in *British Birds* 79 : 206 that one pair bred on the Mediterranean coast in 1984 is not based on facts (M. Terrasse pers. comm.). Observations in southern France occur regularly (Carp & Cheylan 1979, Besson 1982, T. Guillosson). The frequency distribution is:

A	M	J	J	A	S	O	N	TOTAL
-	6	8	1	10	7	1	1	34 observations

The extreme records of 3.5.59 at the Camargue (J. Penot) and of 6.11.81 on Porquerolles (J. Besson) do not deviate markedly from the Catalunya data pattern. Three sightings in southern France can be termed inland observations.

Corsica

Old doubtful breeding records (Arrigoni 1904, Bau, in Fridrich 1905). The frequency distribution of the 1956-81 data are supplied by the Parc Naturel Regional de la Corse:

A	M	J	J	A	S	O	N	TOTAL
1	8	5	4	2	11	-	-	31 observations

This shows again a September maximum. Earliest and latest records are from 13.4.80 and 27.9.75 respectively, plus a winter record of one bird on 7.12.80 (Verheyden). Largest flock of 15-20 was seen near Solencara on 20-30.6.78 (H. Link).

Italy

Although Italy with Sicily and Sardinia have a population of about 430 breeding pairs, the inquiry did not bring in new data outside the breeding season. Earliest observations are single birds on Tremiti on 25.3.64 (Di Carlo 1966) and at Tharros/Sardinia on 8.4.62 (Walter 1979b). The latest record is on San Pietro on 13.12.70 (Mocci Demartis 1973). Otherwise there are only 2 records mentioned in the literature: 2 on Giglio in May 1968-70 (Trettau 1971) and 6 on Montecristo on 14-15.5.75 (Bacetti *et al.* 1981) It would be worthwhile to substantiate the statement of Galea & Massa (1985) that the falcons arrive in southern Italy in late April/early May, but in Sicily not until July. On the other hand in a former paper it is mentioned that the falcons are seen from March onwards (Massa 1978). Spring counts at the Straits of Messina gave 3-19 birds each season in 1984-90 between April 10 to May 26 (Giordano 1991). Several birds shot in Sicily in August and September were one year old birds (Massa 1978), an important fact which will be discussed later.

Malta

There is no breeding record for the Maltese archipelago. The Malta Orn. Soc. (now BirdLife Malta) published its data for 1968 to 1982 in *Il-Merill* from which the following excerpts are taken. Earliest and latest records are on 3.2.76 and 26.12.73 respectively. The mean of the first spring observations is 20 April (n=10). The monthly frequency distribution is:

A	M	J	J	A	S	O	N	TOTAL
14	28	12	9	20	75	22	-	180 observations

This shows again a September maximum similar to Spain and Corsica. Although passage migrants from the Atlantic or Balearic colonies would seem likely, there is no substantial falcon migration in the second half of October or later.

Jugoslavia

A small colony on an island which is closed by the military (Vasic *et al.* 1985). Single birds near G2 on 14.8.55 (Bernauer, 1955), in South Montenegro in Aug 1970 (Laursen 1971) and in Gergeliga on 2.7.79 (A. Bruch) and 2 in Split on 24.5.84 (H. Walter).

Albania

Arrigoni Degli Oddi mentions that the species was seen near Durres (Lamani & Puzlanov 1963).

Hungary

One adult at Madartani Intezetben on 12.8.64 (Rajnik 1978).

Bulgaria

Single birds at Debeli Lake on 22.6.75, at Atanassovo Lake/Burgas on 11.8.79 and 26.9.79 (L.Profirov), at Atanassovo Lake on 30.7.80, at Atanassovo Lake/Burgas on 3.10.80 (L. Profirov), at Studen Kladenetz/ Kardzali on 5 and 7.6.84 (P. Iankov) and 4 at Gubesh/Sofia on 24.9.88 (Nankinov *et al.* 1991).

Greece

Regularly seen, but apparently often not recorded. Data from the Greek mainland were supplied by G. Handrinos from the archives of the Hellenic Orn. Soc. to which the observations of G. Arbuthnott, S.v.d. Bent, H.J. Boehr, A. Bruch, T.W. Dougall, S. Eikhorst, K. Falk, H. Gruenhagen, S. Harrap, S. Heard, G-M. Heinze, H. Jerrentrup, A. Lensch, H. Link, A. Noeske, H. Richter, F. Schilling, H. Schwarthoff, C. Smit, J. Sterbetz, E. Thieme and M. Wink were added. The monthly frequency distribution is:

A	M	J	J	A	S	O	N	TOTAL
3	11	6	13	17	2	-	-	52 observations

Twenty June observations by A. Bruch were omitted for pattern coherency. The most striking feature is the absence of autumn observations (when peak frequency is recorded in the western Mediterranean countries). The locations are more common along the Aegean coast as compared to the Adriatic coast, as is to be expected from the location of the colonies. The data of the June visits to Greece by A. Bruch are in line with the comments of B. Hallman: Eleonora's Falcon is regularly observed on the seaside of the mountains such as Pelion, Olympus, etc. They prey on insects, sit on electric wires, and roost in trees. These falcons are just so common that it is impractical to list all single observations. The largest group had 62 birds. H. Link saw about 80 falcons half way between Mount Olympus and the coast in Aug 1979.

The Greek islands may harbour 2500 pairs of Eleonora's Falcon, but they are so rarely visited by ornithologists that the data outside the breeding season are limited to Thassos, Skiathos, Chios, Lesbos, Milos, Paros, Thelos, Thera, Kos and Saria. Records from other islands include an early bird on Carpathos on 29.3.63 (Kinzelbach *et al.* 1965), the first small flock on Naxos on 25.4.1862 (Krüper 1864), 15 birds on J3 on 25.4.78 (Cant 1978), and 2 on Rhodes on 23.4.85 (A. Lensch), showing typical arrival indications for the south Aegean Sea. One falcon was seen mobbing a Long-legged Buzzard *Buteo rufinus* at the south coast of Kos on 27.4.87 (D. Mitchell). A maximum of about a dozen birds was recorded on Rhodes in the first half of May (G.S. Bowen & S. Christensen), feeding on cockchafers at dusk (W. Scharlau). Other records are: 80 on Anaphi on 20 May hawking for insects (Wettstein 1938), 50-60 catching insects on Sifnos in mid-May 1983 (Dragoumis 1984), 40-50 seen daily on Samothragi in Aug 1976, chasing for insects in the afternoon (F. Schilling) (this may indicate a nearby not yet known colony), and 20 still present on J24 on 24.10.78 (Cant 1978). The only records from the Adriatic islands are at least 2 birds on Zakynthos on 29.9. - 1.10.85 (Whitehead 1987) and 1 in Corfu in May 1989 (P. Hayman).

Crete

Regular observations of single birds or small groups are made due to the nearby breeding islands. The data is too heterogeneous for a respective frequency pattern. So a typical selection is given: first sightings on 6.4.45 (H. Sielmann) and 6.4.82 (C. Vaglianos); 3 birds above a lake on 25.4.45 and 10 on the next day hunting dragonflies (H. Sielmann). At K12, a colony of 25 pairs: no falcons were seen on 9.4.86, but 10 birds were already present on 20.4.86 (W. Scharlau). Similarly, no sightings in two weeks near Rethymnon, until the first bird migrated west at noon on 20.4.86 (T.W. Gougall), or no sightings for three weeks, until the first bird headed out for K6 in the evening on 22.4.88 (P. Gloe). Klockenhoff & Krapp (1977) saw the first 15 falcons on 29 Apr and 50-80 birds on 9.5.76 which imply that the population is complete by this time of the year. Mean of first arrival is 16 Apr (n=6). From K5, a colony of 60 pairs, 13 birds left for Crete at 08.15hrs on 4.5.85 and none returned in the evening (K. Falk). From the island group K8-10 (550 breeding pairs) 320 birds arrived on Crete within one hour, early in the morning on 31.5.85 (W. Scharlau). 40 individuals circled together with 3 Yellow-

legged Gulls *Larus cachinnans michahellis* to catch small flying insects on 24.5.78 (D. Ristow pers. obs.), and more than 50 falcons circled together with several Yellow-legged Gulls west of Iraklion to catch presumably locusts (the gulls with their bills and the falcons with their talons; the falcons may even take flying ants with their talons) - end of May 1986 (J. Siefel). More than 120 birds were seen at the Geropotamos river on 2.6.77 catching flying insects (C.Vaglianos). Late summer and autumn data are scarce, indicating no major influx from migrant falcons. There are, however, some November/December records: 4.11.44 (H. Sielmann), 5.11.76, 15.12.77, 21.11.78, 30.11.78, 3.12.78, 4.12.82 and 18.12.83 (C.Vaglianos). There are no January-March records.

Turkey

The country has one small colony in the Marmara Sea. Kasparek & Ristow (1986) list the individual sightings from the other coastal parts and four inland records. Noeske (1987) lists 5 additional inland locations. Two recent ring recoveries from Karaculha/Seki at an altitude of 1500m in early Aug 1988 and south of Yenikoy/Demirci in early May 1989 are also inland. The following frequency:

A	M	J	J	A	S	O	N	TOTAL
12	42	23	14	13	15	6	-	125 observations

peaks in May and in this respect represents again a typical east Mediterranean distribution. In addition, on 27.5.90, 29 birds were observed during a 5hr/180km road count between Ulubat Gölü and Yeniköy, northwest of Bursa, typically in groups of 1-3 birds (B.-U. Meyburg). Early and late sightings are at Tasucu on 9.4.86 (C. Husband) and at Menderes river on 20.10.82 (B. Porter). Largest flocks were recorded at Lake Manyas (30 birds) on 28.6.73 and at Resadiye Peninsula/Datca (25-40 birds) on a windless day at noon on 8.5.86 (D. Dytschaerer). A dark morph individual followed by a light morph ten minutes later, migrated west at Dürnalik/Gaziantep, almost 100 km away from the coast, in the afternoon on 25.4.87 (M. Duquet). On hot and windless summer days, in several years, various groups of up to 60 birds came from the west, from 09.00hrs onwards, perhaps from J1, to catch flying ants near the coast of Bitez Bay/Bodrum; the maximum influx was 112 birds within two hours on 4.6.81 (H. Tollemache).

Cyprus

The total of L3 - L5 is about 90 breeding pairs. The data as given in the reports of the Cyprus Orn. Soc. for 1970-83 are not so detailed as to allow the construction of a frequency distribution. When we exclude the sightings on 20.2.77, 7.3.54 and 18.3.78 as exceptions, the mean for the first spring sighting is 16 Apr (n=12). Last individuals at a colony were seen on 3.11.57 and 28.10.78 (Foers 1983). Last sightings fall within 26 Oct and 16 Nov (n=9), the exceptions being 22.11.78, 6.12.78 and 10.12.81.

Syria

2 single birds at Tartons on 13.5.80, and 1-2 birds on 24-26.5.80 and on 4-6.6.81 at Ras-el-Basit (W. Baumgart), and a pair on 30.5.82 on a seacliff near Ras-el-Basit (Baumgart 1991).

Lebanon

Single birds in Beirut on 28 April (no year given) (Bourne, in Kumerloeve 1962), at Ras Chekka on 1.5.55, at Laklouk on 7.10.56, at Damour on 19.10.56, and at Ainab on 25.8.57 (Nevins, in Kumerloeve 1962) and at Nahr el Kalib on 29.5.85 (N.H. Khairallan).

Israel

Single birds at Eilat on 20.4.77 (Christensen *et al.* 1981) and on 4.4.90, coming in straight from the Red Sea at 17.00hrs (R. Müller), and 5 birds also at Eilat on 1-11.5.77 (Christensen *et al.* 1981). There are also some observations in July. The systematic raptor migration counts at Kafer Kasem (Dovrat 1982) from end of August until mid-October gave:

Aug	Sept						Oct		
2	7	10	13	16	42	15	24	11	11

a total of 151 birds in five seasons which must be non-breeders or adults without breeding success (Y. Leshem/I.R.I.C.). There are more than a dozen records from central Israel and Eilat for the first half of November (A.S. Butler, P. Doherty, R.C. Hart, E. Hirschfeld, K.M. Olsen). Out of 5 birds which were aged, there were 1 adult, 1 yearling and 3 juveniles.

Saudi Arabia

A yearling from K8 caught on 6.6.91 at Jubail, 7km inland.

Egypt

Goodman & Meininger (1989) describe it as rare but regular passage visitor from 12 Apr to 9 May and from 7 Sep to 19 Nov. All records are from the Mediterranean and Red Sea coasts except for one of 5 birds catching locusts at Giza at the end of Apr 1955 . A two year old bird, ringed as a nestling in Cyprus, was shot at Mersa Matruh in Sep 1969. Other records are: 1 on 12.4.48 at Suez (Meinhertzhagen); singles on 2, 6 and 8.4.54 at 15m altitude above the fresh water canal, 1km south of Fanara at the Great Bitter Lake (P. Hayman); 27 (17 of which were juveniles) migrating south along Suez Canal at great heights, from 26.10. - 2.11.81 (Bijlsma 1983); and 6 in spring 1982 at Suez (Wimpfheimer *et al.* 1983). A 3-year old bird from K8 was caught on 15.10.93 near El Dab'a in the Mediterranean Sea (it is questionable if this bird was a normal breeder, but in any case the early migration date indicates straight passage from Crete). Another 11-year old bird from K8 was found shot (less than a week dead) at El Alamein on 15.11.93, again indicating straight passage from Crete across the sea.

Ethiopia

Urban.& Brown (1971) list the species as uncommon for the coastal region. One was seen at Gobelli River in 1976(?) (Jelinek in *Ethiopian Wildlife and Nat.Hist. Soc. Newsl.* 113). As Clapham (*Ibis* 1964, 106 : 376) stated that Heuglin (*Ibis* 1859, 4 : 337) wrongly identified *F. concolor* as *F. eleonorae* there seems to be no definite record for Ethiopia (J.S. Ash).

Djibouti

Single birds on 21.10.85, 30.10.85 and 21.10.87 (Welch & Welch 1988).

Somalia

3 were shot at Sheikh on 17.5.19, several were recorded at Garasgoi Hil on same day, and a pair was shot also at Sheikh on 5.5.20 (Archer & Goodman 1937, Ash & Miskell 1983).

Kenya

An injured adult on 12.11.51 in Nairobi (Britton 1980) and a few months later 1 at Eldoret (Summers, in Mann 1977); 2 on 10.11.74 at Embu (Turner 1978); and singles on 5.11.78 at Ngulia and on 9.4.80 at Nakuru (Britton 1980).

Uganda

One bird was bought in Kampala in 1960 (J. Savidge) and another recorded on 25.3.72 at Kidepo Valley National Park.

Tanzania

4 on 4.11.74 preying on termites at Serengeti National Park (Schmidl 1982). Savidge (in Turner 1978) gave the arrival dates as 7-20 Dec at Ruaha National Park in the years 1964-70, staying until late March/early April, with up to 300 birds in the afternoon, all flying over a given point catching termites.

Madagascar

Walter (1979b) lists about 20 records between October and 14 Apr for the past hundred years, including a ringed juvenile from Cyprus on 30.11.62 (which implies a migration speed of 100 km per day at least) and a ringed yearling from Morocco in Jan 1962. Turner (1978) gives 20 Nov -14 Apr for the high central plateau, whereas Meyburg & Langrand (1985) give 16 Oct - 2 May, typically in groups of 3-21 birds in the areas as indicated in Fig. 1. However, Walter (1979b) himself saw the falcons near Morondava in Dec 1973. i.e. outside both areas indicated above. So further investigation seems to be appropriate.

Réunion

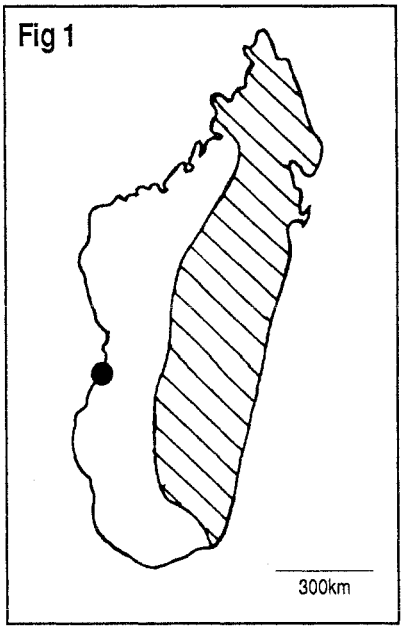
One collected before 1869 (Stresemann 1954)

Mauritius

One obtained before 1882 in Dec. (Terrasse 1963), and singles recorded on 23.11.80, 11.12.80, 15.12.81 and 27.1.82 (C.G. Jones)

Seychelles

One light morph adult, mobbed by Fairy Terns and White-tailed Tropic Birds, on 16.12.86 on Aride (photo by P.M. Griggs).



Eleonora's Falcon in Madagascar. Shaded area indicates distribution according to O. Langrand (pers. comm.). Dot indicates location of Morondava

Discussion

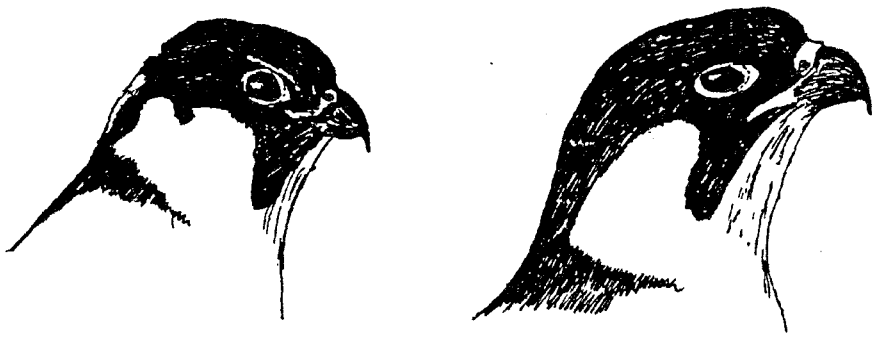
How do Eleonora's Falcons reach their breeding colonies in spring?

Data is scarce, but suggest that they migrate from Tanzania/Madagascar through Somalia and Egypt to reach the Mediterranean. Some seem to continue along the African rift valley into Israel while others may fly along the north African coast or right across the sea by some "island hopping technique". The regular passage in Malta may speak for the latter possibility. The mean of the first spring sightings in Cyprus and Crete (16 Apr), Malta (20 Apr), Balearic Islands (25 Apr) and Morocco (30 Apr) reveals a trend from east to west with a progress of about 300 km per day, a plausable value. On the other hand, thre are no migration observations to link East Africa with Cap Bon (Tunisia), whereas the record in Mali lies on a straight line between Madagascar and the breeding destination on the Canary Islands.

Where are the falcons from April to October ?

Old falcons are paired and occupy territories right after arrival. But the desolate islands cannot support a colony. So the falcons have to hunt elsewhere and are probably several hundred kilometres away from their breeding cliffs, especially in June. They feed on insects and may form casual flocks at places with swarming ants or rich insect life such as wetland areas. This also explains why there are not only observations near the coast, but also casual inland sightings from almost all Mediterranean countries. Only Klockenhoff & Krapp (1977) believe that the falcons also catch birds on the mainland in spring.

Fig 2



Heads of a Hobby (left) and of a light morph Eleonora's Falcon (right) for comparison: Eleonora's Falcon has a relatively large bill, the whitish line above the eye is short or absent, the white patch on the cheek ends at the ear or, exceptionally, can be elongated slightly in the lower half of the patch. In case of the Hobby the white patch is larger and interrupted by a dark "arrow" from the crown towards the ear. The feathers on the side of the nape have a very large white base and thus form two pale "half-moons" on the nape of the Hobby. Although the head colours of juveniles are fainter than in adults, the same contrast features hold for juveniles of both species, and also for heterozygote dark morph juveniles of Eleonora's Falcon. Some light morph juveniles of Eleonora's Falcon have very faint "half moons" on the nape. These contour lines help to identify the species when falcon size is difficult to estimate, e.g. on photos.

From July onwards the old falcons cannot be so far away from their colonies and the frequency of observations declines accordingly, but only in the east Mediterranean. In the west, a conspicuous frequency peak is observed in August and especially September. Three explanations can be put forward: (a) enhanced observers' activity during summer vacation (tourists), (b) confusion with the Hobby *Falco subbuteo*, or (c) a high proportion of vagrant immatures are recorded. None is satisfactory. In order to attempt explaining this phenomenon, only the observations of dark morph Eleonora's Falcons are taken in consideration. However this detail is often not supplied, and so the total sum of observations of dark morphs for the Iberian Peninsula, France and Corsica, and Malta is given and compared with the respective Turkish data.

	A	M	J	J	A	S	O	TOTAL
Portugal, Spain, France, Malta	4	12	7	2	11	13	5	54
Turkey	3	8	5	7	3	2	2	30

The August/September peak for the western Mediterranean countries has been reduced this way, and also in the Turkish data the relative reduction for August/September is greater than for the other months. Still, an unexplained frequency peak remains for dark morph adults in western countries. But the higher proportion of "light" morph falcons on the mainland in late summer could make sense. Heterozygote dark morph immatures resemble light morph immatures and are not distinguished from light morph adults in the field by average observers. This way, a higher fraction of "light morph" birds in late summer could result. The possibility that there are many immatures on the mainland in September is supported by the ratio of adult to immatures shot in September when the hunting season starts (Table 1 and Massa 1978). Table 1 also shows that immature non-breeding falcons are at unexpected locations, i.e. far away from the native colony at this time of the year.

In order to provide better field data in the future, the characteristics of juvenile Eleonora's Falcon are given here: all back, wing and tail feathers have yellow/brownish tips giving the resting bird a different appearance from adult falcons. When the falcons are flying overhead, especially the 8mm light tips of the tail feathers help to distinguish juveniles from adults in autumn. Most of the plumage is moulted at 12 months of age, but the tertials still have yellowish bars on both webs of the feathers, so even when the tips are abraded the immature colouration is maintained in the transition area of back to wing. For a standing falcon the wing covers most of the feathers on the flank which have large dark triangular tip in case of a yearling, whereas the flank feathers of adults have dark longish streaks, similar as on the belly. The best colour picture of a light morph juvenile is given in Cade (1982), while that of a heterozygote dark morph juvenile is given in Heinzel *et al.* (1972) (but the caption incorrectly refers to the bird as a "light" morph immature).

How do the falcons reach their winter quarters?

The young fledge in the beginning of October, so migration for them and the adults cannot start before mid-October. But no migration observations after mid-October are known within the real Mediterranean area. This is especially true for Malta.
The trend of the last autumn sightings is of the opposite pattern, i.e. from west to east, compared with the first

spring sightings. In line with this trend are exceptional winter sightings which stem primarily from the eastern Mediterranean areas. No likely prey was mentioned in the December observations, but perhaps the falcons try to capture Starlings *Sturnus vulgaris* near their roosting sites in reed areas.

The best migration data are from Israel and Egypt. The high percentage of juveniles as noted by Bijlsma (1983) and Hirschfeld is perhaps not a coincidence as Clark (1981) states that females depart early from the colony and Meinertzhagen (1940) noted a high percentage of juveniles later on. The sum per season in Israel and Egypt for late autumn is low, so it is not possible to decide whether these birds all stem from an isolated area such as Cyprus or perhaps from Aegean islands. The observation sites at Kafer Kasem and Eilat surely are not on the shortest route between breeding colonies and wintering area and could be termed inland records on migration. They would indicate that Eleonora's Falcon normally migrates inland as any other raptor species does.

What is really missing are systematic migration studies at these sites from mid-October onward and even more important, similar studies along the North African coast.

Age	Recovery site	Date of Recovery	Ringed (Sept.)
	Turkey (Demirci)	10 May 1989	1988
	Turkey (Ordu/Black Sea)	Jun 1970	1969
	Saudi Arabia (Jubail)	6 Jun 1991	1990
	Greece (Chios)	4 Jul 1990	1989
	Cyprus	23 Jul 1982	1981
	Turkey (Seki/Fethiye)	10 Aug 1988	1987
	Greece (Chios)	15 Aug 1986	1985
	Turkey (Antalya)	24 Aug 1986	1985
	Spain (Guadalajara)	26 Aug 1989	1988
1 year	Corsica	2 Sep 1972	1971
	Algeria (Med. coast)	8 Sep 1978	1977
	Turkey (Aydin)	8 Sep 1987	1986
	Greece (Chios)	9 Sep 1966	1965
	Greece (Chios)	9 Sep 1966	1965
	Greece (Chios)	14 Sep 1966	1965
	Turkey (Manavgat)	19 Sep 1985	1984
	Cyprus	20 Oct 1983	1982
	Madagascar	12 Nov 1982	1981
	Madagascar	Jan 1973	1971
	Malta	1 May 1973	1971
2 years	Malta	9 Sep 1971	1969
	Greece (Amorgos)	5 Oct 1990	1988
3 years	Egypt (El Dab'a)	15 Oct 1993	1990
	Madagascar	6 Nov 1982	1979
4 years	-	-	-
5 years	Madagascar	Sep 1982	1977
	Madagascar	22 Jan 1986	1980
6 years	Crete	15 Sep 1971	1965
9 years	Crete	22 Jul 1992	1983
11 years	Egypt (El Alamein)	15 Nov 1993	1982
Total	**29 individuals from 3500 nestlings**		

Table 1
Recoveries of Eleonora's Falcons ringed as nestlings off Crete

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IMPROVED DECISION MAKING BY MIGRATING RAPTORS DURING PEAK PERIOD OF MIGRATION

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Abstract

Earlier studies had shown that raptors on autumn migration at Buskett, Malta, tended to appear when windstrength in the early morning was low (below 10 knots; GOOD conditions). Only a small proportion of raptors migrated when wind strength in the early morning was high (above 10 knots; BAD conditions). All raptor species except the kestrels showed such behaviour, the principal species involved being Honey Buzzard Pernis apivorus, Marsh Harrier Circus aeruginosus and Hobby Falco subbuteo. Data for three migration seasons (1976-78) were divided into three periods: EARLY (1-15 September), PEAK (16-30 September) and LATE (1-15 October), and the fraction of raptors (all species except the kestrels) migrating in BAD conditions calculated. The fraction migrating during BAD conditions was significantly lower during the PEAK period. The average wind speed in which raptors migrated was calculated for each of the three periods. Raptors migrating during the PEAK period flew in an average wing speed which was lower than raptors migrating EARLY or LATE. It is suggested that socialisation during the PEAK period when many birds were on migration simultaneously might have improved the quality of decision making. Unfortunately, uncertainty about what actually takes place during strong northwesterly winds greatly reduces the value of this study and it is possible that the reported effect is an artefact.

Introduction

In an earlier paper (Thake 1986-87), the results of correlation analyses were used to show the fraction of raptors migrating during "GOOD" weather was positively correlated with the number of raptors on migration at the time. In short, raptors migrating over Malta appeared to be making decisions of better quality when many raptors were on migration simultaneously. Further analyses have been made using original data in an attempt to make the effect more apparent. The results of these analyses are reported hereunder.

Methods

The methods employed to obtain the raw data were described in earlier papers (Thake 1977, 1980, 1986-87). Calculations were performed using a CASIO FX 801P programmable calculator, using computer programs devised and tested by the author.

Analyses Performed

The daily totals of all species of raptors excluding the kestrels were used in this study. Each total was coupled with wind strength data recorded during the same day. If wind strength was higher than 10 knots, the day was scored as "BAD"; if less than 10 knots, the day was scored as "GOOD". The daily totals were split into three periods: EARLY (1-15 September), PEAK (16-30 September) and LATE (1-15 October).

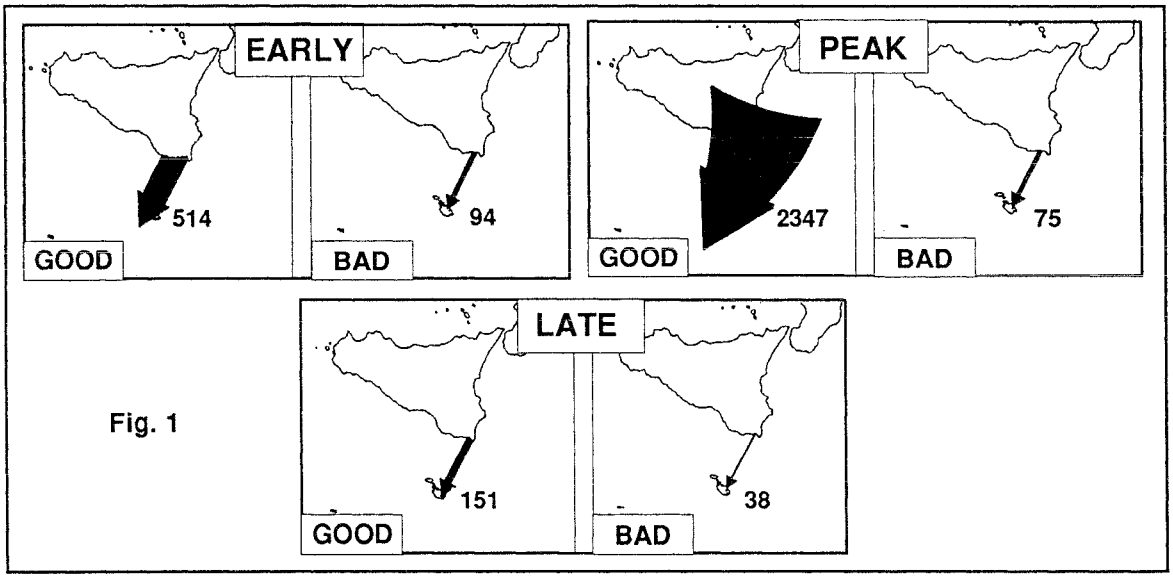

Fig. 1

Fig. 1: Variations in the quality of decision making over the migration season. The migration season is divided into "EARLY", "PEAK" and "LATE" periods, and the total numbers of raptors seen at Buskett when the weather was scored as "GOOD" and when the weather was scored as "BAD" are depicted on the maps (See Table 1).

Analysis A : The proportions of raptors migrating during "GOOD" and "BAD" weather in each of the three periods (EARLY, PEAK and LATE) were compared. Chi square analysis showed no significant difference between the EARLY and LATE periods. The PEAK period differed significantly from the other periods (see Table 1).

Table 1
Variation in the quality of decision making over the migration season

	Number migrating in "good" weather	Number migrating in "bad" weather
early 1 - 15 Sept	514	94
peak 16 - 30 Sept	2347	75
late 1 - 15 Oct	151	38

Statistical analysis: The data were analysed as a 3 x 2 contingency table.
Chi square = 185.877. Degrees of freedom = 2. $p << .001$

The z test for the difference between two proportions was performed. Data for EARLY and LATE periods were combined and tested against the proportions recorded during the PEAK period. $z = 13.4426$; $p << .01$

Analysis A is open to criticism because arbitrary conditions have been imposed by the analyst in deciding what constitutes a "GOOD" and a "BAD" day for migration. Light winds are indicative of anticyclonic conditions, the best type of weather for migration. Correlation analysis of data from Buskett have shown that most raptor migration occurs in light winds (Thake 1977-78, 1980, 1981-83), and wind strength is the best predictor of daily totals. Migration when wind strength is low makes good sense in the Central Mediterranean. The minimum sea crossing here for raptors using the Malta route is about 420 km and raptors cannot risk getting caught at sea in bad weather. The most dangerous type of weather which might be encountered at this time of year is that caused by an Atlas lee depression which has moved out over the Central Mediterranean. The probability that this will occur is small if the wind strength is low. Thus, there can be no doubt that light winds are best for raptor migration but the analyst's act of choosing 10 knots as a boundary between "GOOD" and "BAD" weather is clearly arbitrary. The analyses described below (analyses B and C) attempt to overcome this difficulty.

Analysis B : Data for 1983 were added to 1976-1978 data in order to increase the samples size. All species of raptors except the kestrels were included in the analysis. The migration season was divided into EARLY, PEAK and LATE periods. The percentages of raptors migrating at various wind strengths were calculated. The results are listed in Table 2.

Table 2
Distribution of sightings at various wind strenghts, at various times during the migration season.

Wind strength (in knots)	Early	Peak	Late
Calm	31.7%	27.9%	29.1%
1 - 5	11.6	35.6	12.1
6 - 10	20.3	30.5	31.9
11 - 15	35.8	5.8	3.8
16 - 20	0.2	0.0	20.9
21 - 25	0.2	0.1	2.2
Total number of raptors seen	**438**	**2520**	**182**
Number of days in sample	**35**	**47**	**24**

The data were analysed as a contingency table by Chi square analysis (see Table 3). The tendency for migration to occur at lower wind strengths during the peak period of migration is quite clear. However, an important discrepancy was noted. The distribution of sightings with wind strength during the EARLY period differed significantly from that during the "LATE" period. (2 x 6 contingency table. Chi square = 150.66 $p << .005$). The tendency for migration to occur during lighter winds in the PEAK period was analysed explicitly in Analysis C.

***Analysis C*:** The data were employed to obtain values for the mean wind strength prevailing on days when the birds migrated. The raw data are shown in Table 4. These data were analysed by single classification ANOVA. This technique compares samples in order to determine whether the samples could have arisen by random sampling from a single population. This was not the case. Raptors migrating during the PEAK period did so at lower wind strengths than raptors migrating EARLY or LATE.

Table 3
Distribution of sightings at various wind strengths, at various times during the migration season.

Wind category (Knots)	0	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25
Early	139	51	89	157	1	1
Peak	704	897	768	147	1	3
Late	53	22	58	7	38	4

The data were analysed as a 3 x 6 contingency table.
Chi square = 1065.344. $p << .005$

Table 4
Single classification ANOVA: Variation of mean strength "Early", during the "Peak" and "Late" in the migration season. The mean wind strength is the average calculated over the total number of birds migrating during the category (e.g. the mean wind speed during which raptors migrated EARLY in the season was 6.73 knots).

	Mean (knots)	S.D.	Sample size
EARLY	6.73	5.6	438
PEAK	4.3	3.9	2520
LATE	7.68	7.0	182

$F_{2,3137} = 98.511$; $p << .01$

Discussion

The various analyses reported in this paper show beyond any reasonable doubt that raptors migrating during the peak migration period made fewer mistakes about when to migrate than raptors which migrated early or late in the season. The implication is that decision making improved when many birds were on migration simultaneously. Some form of social interaction which improves the quality of decision making might be taking place. Thake (1984-85) has suggested that animals making decisions in a group on a majority basis should experience an improvement in performance relative to the performance of single animals, and the accuracy of majority decision making increases with group size. This is one of the forms of social interaction which might have given rise to the improved decision making reported here. Majority decision making might have been responsible for the improved quality of decision making when many raptors were migrating together.

Another possibility is that a greater fraction of raptors which migrate EARLY and LATE are inexperienced birds. The experienced adults might tend to migrate during the peak migration period and their judicious decision making might influence the behaviour of inexperienced birds. As a result a smaller proportion of the inexperienced birds would make mistakes during the PEAK period.

Yet another factor operating might be an effect by which raptors which migrate EARLY and LATE are more confident birds which respond by social facilitation less readily. They are more likely to strike out of their own.

Raptors which migrate EARLY and LATE might be more motivated to migrate than raptors migrating during the peak migration period. Raptors migrating EARLY might be adopting a strategy which envisages their arrival on the wintering grounds before other conspecifics. Such a strategy ought to be advantageous because a bird which arrives early on the wintering grounds is already a territory holder when other conspecifics arrive. Territory owners are generally at an advantage in territorial disputes (Krebs & Davies 1981). EARLY birds ought to be in a hurry and are more likely to decide to migrate when weather is not very favourable. Raptors migrating LATE might be adopting a strategy which involves them in a longer period of premigratory fattening. If such a strategy results in their arriving in better condition on the wintering grounds, the strategy might be adaptive. For instance, a bird which is in good condition might be better able to resist attempts to evict it made by the Afrotropical related species. It is conceivable that LATE birds might be in hurry also because they would be at a disadvantage if they were to arrive late on the wintering grounds. All suitable territories might be occupied already. Thus, raptors migrating LATE might conceivably opt to migrate in weather which birds migrating during the PEAK period would avoid. The hypotheses outlined above are not mutually exclusive and the true explanation might be a very complex one indeed.

The results published in this paper are based on inadequate data. It is conceivable that wind direction might cause the stream of migrating birds which passes through the Maltese Islands to shift in such a way as to cause the totals to vary. If this is so, Buskett totals might be related to the total number of raptors on migration, in a complicated manner.

Comparison of results obtained at Buskett with published results obtained elsewhere (Richardson 1978, Alerstam 1978) as regards the effect of wind strength on migration intensity show no major qualitative differences. However, wind determined drift and leading line effects cause much variation in daily totals elsewhere (e.g. Porter & Willis 1968, Finlayson et al 1976, Alerstam 1978). Buskett totals are known to be subject to a small leading line effect operating in southerly winds (including sea breezes - Thake 1980). Thus, Buskett totals are known to be distorted but it is what actually happens when winds blow between northwest and west which gives greatest cause for concern. The dearth of sightings of raptors in the Maltese Islands in northwesterly and westerly winds above about 10-15 knots is open to three main interpretations. It might be that few raptors attempt to migrate across the Sicilian channel under such conditions. This interpretation is assumed implicitly in the analyses reported in this paper. An alternative interpretation of the observations envisages the stream of migrating raptors being shifted eastwards by the northwesterly winds, and failing to make a landfall on the Maltese Islands. If this interpretation is correct, the "decision making" which is presumed in this paper to have taken place when birds fail to appear in Malta is an artefact, created by wind determined drift. Beaman and Galea (1973) suggested that many raptors fly over the Maltese Islands at great height during tail winds (northwesterly winds have a favorable northerly component). The author's field observations confirm that raptors are often seen flying higher that usual in light tailwinds, but the raptors seen always used conventional thermal soaring. Each bird or flock would soar in a thermal until it had reached sufficient height after which it would glide southwards. Raptors never soared higher than the base of convective cloud. When cloudbase was low, some birds could be seen disappearing into the mist at the base of the cloud, only to reappear after a few seconds as they glided out of the thermal. Relative humidity in Malta is so high that convective cloud base usually lies below 1000m and is never above 1600m. Thus, cloud base and the thermals below are never so high that raptors soaring directly above the observer are invisible. It seems unlikely that the few raptors which are sighted at Buskett in strong northwesterly winds represent the lowest portion of a major migratory movement at a high altitude. A more plausible hypothesis is that the leading line effect of the southern coast of Malta fails to operate in moderate to strong northwesterly winds. If this hypothesis is correct, the dearth of sightings in northwesterly winds is an artefact and the analyses reported in this paper are invalid.

Unfortunately, there are no reports of observations in southern Sicily where the birds leave the coast bound for Malta and North Africa. Observations made there would provide a direct record of the decision making made by raptors in different weather conditions, and would be more elegant than results produced here in Malta can ever be. There are also no observations of the migratory movements by means of radar. Radar ought to provide direct evidence for what actually takes place. Thus, the results reported in this paper are published with the admonition that the reported effect might be artefact.

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INTER-SPECIFIC AND INTRA-SPECIFIC INTERACTIONS AMONG BIRDS FEEDING ON NECTAR IN MALTA - WINTER AND SPRING 1978

Martin A. Thake

Abstract

Observations of interactions among various species of birds which were feeding on nectar of Antholyza aethiopica and Prunus domestica italica revealed the following interspecific "peck order" among the avian nectarivores. High ranking birds evicted lower ranking ones from nectar sources: (1) male Blackcap Sylvia atricapilla; (2) Sardinian Warbler Sylvia melanocephala and Subalpine Warbler Sylvia cantillans; (3) female Blackcap and Chiffchaff Phylloscopus collybita. Sardinian Warblers are resident all the year round, while the Chiffchaffs were probably all winter residents. One of the Blackcaps was a winter resident while most of the rest were probably spring passage migrants. The Subalpine Warbler is a spring passage migrant and does not breed locally. Chiffchaffs employed hovering as a means of extracting nectar rapidly from the flowers, before they could be evicted by the other birds. They were also observed hovering in order to probe flowers which could not be probed easily by climbing the peduncle. When Chiffchaffs could feed at flowers undisturbed, they generally climbed the peduncle, hovering relatively infrequently only when flowers were in an awkward position.

Introduction

Casual observations of nectar feeding produced a number of instances of interactions among birds which were using or trying to use the source of nectar. Most such interactions were recorded at large patches of *Antholyza aethiopica*. This is an alien African species which is the most prolific producer of nectar locally. Interactions were also observed among birds drinking nectar from Greengages *Prunus domestica italica*. An account of these observations is reported hereunder.

Study Method

Observations were made during winter and spring 1987 at the following localities: Tal-Balal, Magħtab, San Anton Gardens, St Aloysius College, the Seminary at Tal-Virtù. Observations were made by standing or sitting some distances away from the nectar source and observing any happenings through binoculars, whenever birds were seen approaching the nectar source. Short notes were made in the field and these were rewritten in full in the evening. The best studied area was San Anton where on one occasion, a patch of flowers was watched continuously between 09.00hrs and 17.00hrs.

Results

Tal-Balal (19.2.87): a pair of Sardinian Warblers *Sylvia melanocephala* were nectar feeding from a large patch of *Antholyza aethiopica* growing in their territory. A large flowering Almond Tree *Prunus dulcis* was not visited at all, even though it was partly surrounded by the *Antholyza* patch. Both the male and the female were seen visiting the *Antholyza* patch; four visits by the male and three by the female in two hours. No other species attempted to use this patch of flowers.

Magħtab (7.2.87, 9.2.87, 20.2.87): There were several plant species which were producing usable quantities of nectar. A large patch of *Antholyza aethiopica* about 50m away from a group of Carob trees *Ceratonia siliqua* was used most frequently by a male Blackcap *Sylvia atricapilla*, but a pair of Sardinian Warblers from the same group of Carob trees also used the *Antholyza* patch. Whenever the Blackcap's visits coincided with the presence there of a Sardinian Warbler, he would evict the Sardinian Warbler by means of a short chase in flight. This also happened on 20.2.87 when the birds had started using a smaller patch nearby. A pair of Sardinian Warblers from a nearby territory could be seen nectar feeding from Almond trees.

An interesting observation was made on 7.2.87. The author took up station close to the main *Antholyza* patch - too close as it turned out. This patch was in use by a male Blackcap and a pair of Sardinian Warblers. No birds visited the *Antholyza* patch. Instead, the male Sardinian Warbler was seen drinking nectar from Asphodel plants *Asphodelus microcarpus* in an adjacent field about 35m away from the observer! The male flew to a flowering spike and climbed the peduncle from close to the lowest flower. His feet were on the peduncle continuously, as he craned his neck and probed three flowers with his bill. He then wiped his bill twice on the peduncle and moved to another spike where the process was repeated. It seems as though the author's tactless proximity caused this Sardinian Warbler to drink nectar from the Asphodels instead. Asphodel nectar is very sweet but only small quantities are present and this nectar is protected by a palisade formed by the bases of the filaments of the stamens. Bees, the usual pollinators of the flowers, have to push one of the filaments aside in order to reach the nectar. The palisade of filaments seems to be an adaptation to slow down the evaporation of nectar.

San Anton Gardens (14.2.87): An *Antholyza* patch was watched between 09.00hrs and 17.00hrs This patch was within the territory of one of the resident pairs of Sardinian Warblers, and was used extensively by the female. Three other birds poached nectar at the *Antholyza* patch and were usually repulsed by the female Sardinian Warbler. Thus four birds were observed visiting the patch, making a total of 40 visits in 7.5 hours. The results are summarised in Table 1.

Table 1
Summary of observations at a patch of *Antholyza aethiopica* at San Anton Gardens between 09.00hrs and 17.00hrs on 14.2.87.

	09.15 - 12.00	12.00 - 14.00	14.00 - 16.40
Female Sardinian Warbler:			
No. of nectar feeding bouts	8	12	8
Average duration per bout	1.5 min	1 min	1 min
Female Blackcap:			
No. of bouts of nectar feeding	1	0	0
Chiffchaff (small):			
No. of nectar feeding bouts	1	6	2
No. of times chased away	2	4	3
No. of times undisturbed	0	3	1
Average duration per bout (estimates, no stopwatch)	5 sec	25 sec	65 sec
Chiffchaff (large):			
No. of nectar feeding bouts (undisturbed)	0	0	1

Only the female Sardinian Warbler was observed to use the *Antholyza* patch. Her mate joined her once in her efforts to repulse intruders but did not drink any nectar. The female Sardinian Warbler was seen chasing away a female Blackcap and a Chiffchaff *Phylloscopus collybita*. The female Blackcap visited the *Antholyza* patch only once and was chased away immediately. The presence of a human observer close to the patch might have discouraged this bird; Blackcaps are more wary of humans than Sardinian Warblers and Chiffchaffs are. The Chiffchaff which visited the *Antholyza* patch during most of the day was slight in build and had an area of damaged plumage on one flank, where the feathers were permanently ruffled. A larger Chiffchaff visited the patch once at about 16.20hrs. The small Chiffchaff visited the *Antholyza* patch 13 times in the course of the observations. At first, it was repulsed on every occasion, but later in the day several of its visits brought no reaction from the female Sardinian Warbler which was foraging in the Citrus orchard nearby. On one such occasion, the Chiffchaff drank nectar undisturbed for almost 2mins.

The birds adopted two main methods of nectar feeding: (a) climbing the peduncle and probing individual flowers with the bill; and (b) hovering in front of a flower and probing the flower with the bill. Hovering was employed by Chiffchaffs only, and even this species preferred to feed by climbing peduncles. Harassment by the female Sardinian Warbler caused the Chiffchaff to adopt hovering in order to poach nectar rapidly before the Sardinian

Warbler could arrive. A short period with moderate gusts of wind during the afternoon made hovering in front of flowers more difficult for the Chiffchaff. The Chiffchaff had trouble hovering in position in front of a flower during a gust. Even climbing the peduncle had its difficulties. Apparently, the female Sardinian Warbler could not avoid spilling nectar all over her breast feathers and she looked quite untidy for most of the day.

The female Sardinian Warbler used a very characteristic threat flight when displacing intruders. She would fly very slowly, straight at the intruder. During this flight, she did not beat her wings continuously and parts of the flight consisted of a glide. During this glide, portion of the threat flight, the wings were slightly dropped and cupped slightly downwards. Male Sardinian Warblers have directed similar flights at the author during the breeding season when excessive proximity to the nest caused the males to become nervous. The male would fly straight at the author, turning away when about 3-4m away. The flight would be directed straight at the author's head. Male Blackcaps use a very similar flight when displacing intruders.

Remarkably, all these interactions were not accompanied by any loud vocalisations. Perhaps the birds wished to avoid disclosing the whereabouts of the patch of *Antholyza* to more distant birds.

St Aloysius College, private grounds (6.3.87 - 16.4.87): A pair of Sardinian Warblers was seen using a patch of *Antholyza aethiopica* regularly between 6.3.87 and 5.4.87. They were observed chasing Chiffchaffs away from the flowers several times. On one occasion, the male and female Sardinian Warbler combined to repulse three Chiffchaffs. At other times, the Chiffchaffs seem to have found the *Antholyza* patch unattended as they could be seen drinking nectar undisturbed. On 25.3.87 a migrant male Blackcap settled in a small Almond tree near the *Antholyza* patch and chased away all visitors, including the Sardinian Warblers. This bird had left by the 27 March.

The Seminary, Tal-Virtù (10.3.87 - 14.4.87): Nectar feeding was observed at a large patch of *Antholyza aethiopica* and at flowering Greengage trees *Prunus domestica italica*. Both resident birds and migrants used these flowers. Two pairs of Sardinian Warblers are known to have used the *Antholyza* patch until 19.3.87 when a migrant male Blackcap arrived and set up territory near the *Antholyza* patch. The Sardinian Warblers used a slightly different area of the patch and the Blackcap was never observed displacing them. Nevertheless, the Sardinian Warblers visited the *Antholyza* patch much less frequently after the Blackcap arrived. Later a female Blackcap spent much time in the area and was tolerated by the male, but she was not observed to feed on nectar. The male Blackcap departed (no more singing heard) on the night of 6-7 Apr 1987.

Nectar feeding from Greengages was first observed on 18.3.87. Subalpine Warblers *Sylvia cantillans*, Blackcaps and Sardinian Warblers were seen drinking the nectar of flowers of this species. The migrant Subalpine Warbler tended to occupy trees in more open situations than those occupied by Blackcaps. No Subalpine Warbler was ever seen nectar feeding in a tree simultaneously with a Blackcap. Both male and female Subalpine Warblers were observed nectar-feeding.

Blackcaps usually visited Greengage trees singly, but some of the trees are known to have been visited by more than one bird. Blackcap numbers reached a peak on 3.4.87 when at least 13 birds of both sexes were present in the areas occupied by Greengage trees. Most of the Blackcaps left on the night of the 6th-7 April and all had left by the 13 April. The trees were still in full bloom when the Blackcaps left.

Relations among Blackcaps were generally amicable except on 3-6 Apr when there were many Blackcaps in the area. At this time some aggressive interactions were noted. A male whose black cap was very dark was seen evicting a male whose cap was duller. It might be wise to monitor cap colour in any future studies of aggressive interactions among Blackcaps. Another male was seen chasing a female Blackcap out of "his" tree. Yet another male Blackcap threatened a female Sardinian Warbler which had been nectar feeding in "his" tree. This was the only occasion when Sardinian Warblers were observed nectar feeding from the Greengage trees. They might have avoided the trees because of the presence of the Blackcaps. Peach *Prunus persica* flowers on trees close by were probed for nectar by Sardinian Warblers on a few occasions and these were not used by the Blackcaps which usually fed higher above ground level. Elsewhere in the grounds, relations seemed amicable. On 2.4.87 four Blackcaps (2 males and 2 females) were seen in close proximity pecking at the dried berries of *Melia azederach* which had been hanging on the tree since the autumn. Several birds continued to use this fruiting tree for several days. A relatively unusual occurrence was recorded on 22.3.87. A female Blackcap was seen drinking rainwater from a drop which hung beneath a *Melia azederach* berry. These berries ripen in October - November but are not usually eaten and tend to dry on the tree, remaining there for several months. It may be that the rainwater had dissolved sugars or amino acids from the dried fruit and this might have made the water hanging beneath the berry sweet.

Sardinian Warblers and Subalpine Warblers were never observed to quarrel despite close proximity on several occasions. Subalpine Warblers appeared to avoid the areas occupied permanently by Blackcaps, and the Sardinian Warblers behaved similarly. Nectar feeding by Subalpine Warblers was observed frequently but never in areas occupied by Blackcaps.

Discussion

The interspecific "PECK ORDER" in disputes at flowers appears to be as follows (decreasing order of dominance): (1) male Blackcap; (2) Sardinian Warbler (and Subalpine Warbler?); (3) female Blackcap and Chiffchaff. No interactions were observed for the following combinations: female Blackcap - Chiffchaff; Sardinian Warbler - Chiffchaff; Subalpine Warbler - Blackcap; and Sardinian Warbler - Subalpine Warbler. The status of the Subalpine Warbler has been deduced tentatively from the facts that it avoids Blackcaps and is not displaced from Greengage trees by the territorial Sardinian Warblers.

The above peck order is interesting because of the low status of female Blackcaps. It might be that female Blackcaps have a milder disposition which makes it easier for them to share a territory with a male Blackcap during the winter. Such sharing of a territory is very frequent among Blackcaps at San Anton Gardens in winter. The birds might not be permanently mated, in which case it might be advantageous for the female to accept inferior social status in order to avoid eviction by the dominant male.

Subalpine Warblers were never observed feeding at patches of *Antholyza*. At the Seminary, Subalpine Warblers were seen occupying Greengage trees within the territory of a Sardinian Warbler pair, while the territory owners used the *Antholyza* patch. The relationship between these two species might not be a simple one. Relations between these closely related species might be dictated by considerations of friendliness rather than aggression and dominance. The Sardinian Warblers seem to treat the Subalpine Warblers as "guests".

The use of hovering while nectar feeding is interesting. Chiffchaffs hover quite well both while foraging on foliage and while nectar feeding. The author has observed Subalpine Warblers hovering while picking the fruits of *Pistacia atlantica* in autumn but not while nectar feeding. It seems that some *Sylvidae* have a reasonable proficiency at hovering which they use while foraging on foliage. Hovering enables them to take items which would otherwise be out of reach. Chiffchaffs which were feeding on nectar used hovering in two contexts. Hovering was employed in order to enable the Chiffchaff to reach inside a flower which could not be probed otherwise (see Thake in press). A much more interesting use of hovering was observed when Chiffchaffs attempted to poach nectar from *Antholyza* patches which were being defended by Sardinian Warblers. The Chiffchaffs would not attempt to climb the peduncles at all but would move from flower to flower in flight, hovering briefly in front of each flower long enough to probe the flower for about a second. Apparently, this type of behavior enables Chiffchaffs to extract nectar from the flowers rapidly, before the Sardinian Warbler can evict it. When left undisturbed, the Chiffchaffs preferred to climb peduncles and probe flowers by craning their necks. Perhaps hovering is too energetically expensive or too tiring to employ for long. Hovering of exquisite quality is employed by hummingbirds while nectar-feeding.

It seems possible that the evolution of nectar feeding by hovering in hummingbirds might have been conditioned by the need to reach awkwardly placed flowers as well as the need to avoid harassment while poaching nectar from the territory of a more dominant bird.

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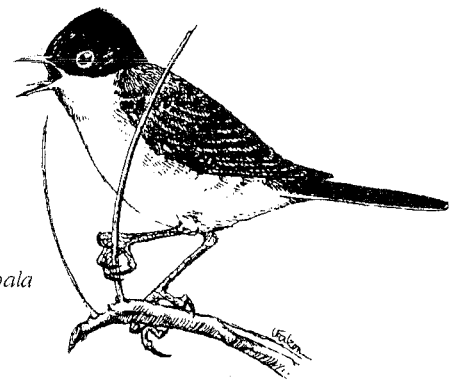

Sylvia melanocephala

PREDATION BY THE YELLOW-LEGGED GULL *LARUS CACHINNANS* ON STORM PETRELS *HYDROBATES PELAGICUS* ON FILFLA

John Borg, Joe Sultana & Richard Cachia-Zammit

Abstract

The predation by Yellow-legged Gulls Larus cachinnans on Storm Petrels Hydrobates pelagicus on Filfla is higher than previously thought. Gulls nesting below the cliffs, where the petrels' nest sites are found, are those which predate mostly on the petrels. From an analysis of pellets collected in summer, it seems that migratory birds form a major part of the gulls' diet during the spring migration.

Introduction

The breeding population of the Yellow-legged Gull *Larus cachinnans* in the Maltese Islands has been estimated to be *ca.* 150 pairs, 80% of which are found on Filfla (Borg & Cachia-Zammit 1988). The colony on Filfla has been on the increase since the early 1970's, when its use for target-bombing ceased. The colony is mainly restricted to the inaccessible plateau surface, and only *ca.* ten pairs breed on the upper parts of the screes beneath the cliffs (Sultana & Gauci 1970).

The Yellow-legged Gull is well known as a predator and a scavenger. Cramp & Simmons (1982), who include the *cachinnans* group with the *argentatus,* state that these gulls take almost anything available of suitable size and texture. The aggressiveness of the gulls on Filfla has been noted on various occasions. Sultana & Gauci (1970) describe how 6 gulls chased a Storm Petrel when it left to sea during daylight and Vassallo (1980) recounts how the gulls mobbed and chased away a flock of migrating Grey Herons *Ardea cinerea* which tried to alight on the islet.

The Storm Petrel is a very common breeding visitor, breeding in very large numbers in the boulder and rubble slopes of Filfla (Sultana & Gauci 1982). There have been no observations at night on Filfla before May and it has been presumed that the petrels return to the colony in late March or early April (Sultana & Gauci 1982) and, more likely, by the end of February and early March (Borg 1989). The young leave the colony by mid-August (Sultana & Gauci 1982) but some unfledged chicks are still present in the nest site in September (Sultana & Borg in prep.). Sultana & Gauci (1982) estimated the colony around 10,000 pairs. Massa & Sultana (1990-91) stated that the colony is probably decreasing due to the washing away of some of the rubble screes below the cliffs during storms. These screes are no longer supplemented by rubble as bombing practices have ceased. Presently the colony is estimated at about 5000-8000 pairs (Sultana & Borg in prep.). Storm Petrels' remains are frequently found in the gulls' pellets (Sultana & Gauci 1982) and Borg & Cachia-Zammit (1986-87) found 4 specimens of *H. pelagicus* from a sample of 11 gull pellets.

Method of collecting

The plateau surface of Filfla, where the main colony of the Yellow-legged Gull is found, is thickly vegetated. This makes it difficult to search for food remains there, unless located within the nest itself or its immediate surroundings. Furthermore no Storm Petrels breed on the plateau surface. Searches were therefore made at and around ten accessible gulls' nests which were located amongst the boulder and rubble screes below the cliffs, where much less vegetation is present. The material, consisting of whole pellets and remains, was collected during four visits in May 1986, May 1989, June 1990, and June 1992 respectively.

Results

79 food items, 43 of which consisted of Storm Petrels' remains, were found in the material collected. Some of the petrels remains were of ringed birds. Table 1 lists 8 rings found in the remains with the dates of ringing and recovery respectively.

Table 1

Ring No.	Ringing Date	Recovery Date
2114074	10.07.71	24.05.86
2126075	28.06.73	06.06.92
S3910	24.05.86	06.06.92
S5906	15.07.89	06.06.92
S5676	15.07.89	06.06.92
S6747	09.06.90	06.06.92
S6233	15.07.89	06.06.92
S4264	24.05.86	06.06.92

About 18 species of birds have been identified altogether in the material collected. The majority of these are trans-saharan migrants. Table 2 lists these species found in the material collected with their respective number of birds and percentages.

Table 1

Species	No. of birds	%age of the material collected
Hydrobates pelagicus	43	59.7
Coturnix coturnix	1	1.4
Gallinula chloropus	1	1.4
Gallinago gallinago	1	1.4
Larus ridibundus	1	1.4
Apus apus	5	6.9
Hirundo rustica	1	1.4
Upupa epops	1	1.4
Merops apiaster	1	1.4
Anthus trivialis	2	2.7
Luscinia megarhynchos	3	4.2
Phoenicurus phoenicurus	1	1.4
Phylloscopus sp.	1	1.4
Ficedula albicollis	1	1.4
Oriolus oriolus	1	1.4
Sturnus vulgaris	1	1.4
Passer hispaniolensis	2	2.7
Carduelis carduelis	1	1.4
Unid. Passeriformes	4	5.6

Discussion

It appears that during spring birds form a good part of the diet of the Yellow-legged Gulls breeding on Filfla. A total of 48 pellets and remains were collected from an area of 20m² below the cliffs, where there were about 8 gulls' nests situated near the entrances of petrels' burrows. This sample contained 32 remains of Storm Petrels.

Ten pellets containing remains of petrels were collected from only one nest. It seems that the Yellow-legged Gulls breeding below the cliffs amongst the Storm Petrel burrows appear to have acquired the habit of taking the petrels as prey. This behavior by the gulls was noted elsewhere (Walmsley, 1986). This is probably done during moonlit nights. Gulls have been observed on Filfla to be quite active during moonlit nights, calling and flying about continuously.

One of the pellets contained a downy Storm Petrel chick. Sultana & Gauci (1970) stated that gulls take those young petrels which venture to the entrance of the burrows to exercise their wings. Although this could be the case in other countries, this is unlikely to occur on Filfla, as gulls abandon the colony by late June, well before the young Storm Petrels leave their nest sites. The chick found in the sample must have been taken by the gulls from an accessible shallow nest site.

In other Mediterranean and North Atlantic colonies, *L. cachinnans* and *L. argentatus* respectively are to blame for the decline and sometimes the total extermination of seabird colonies (Warham, 1990). One such case was observed at Ile Plane (Archipel de Riou - France), where the population of *H.pelagicus* started declining during the same period when the colony of *L. cachinnans* started to increase, while other smaller populations ceased to exist due to the predation by gulls (Walmsley, 1986). The decline in numbers as already mentioned by Massa & Sultana (1990-91) may also partly be attributed to the increase of the gull colony on Filfla.

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SHORT NOTES

First breeding records of the Starling *Sturnus vulgaris*

The Starling *Sturnus vulgaris* is a very common autumn migrant and winter visitor, arriving in mid-September and staying until mid-March. Sometimes a few appear as early as the beginning of August and as late as the end of April or even May. A few birds have also been recorded in June and July, particularly in recent years, but no breeding was recorded (Sultana & Gauci 1982; Gauci 1986-87; Coleiro 1988, 1989 & 1990-91).

An adult bird in summer plumage was observed singing in a public garden at Floriana on 2 May 1994 at 08.30hrs (pers. obs.), while another adult was noted gathering food at St. Francis Ravelin (Floriana) on 19 May at 16.00hrs (J.Sultana pers. comm.). On 8 June, 5 were seen at the nearby football pitch. Four birds were seen walking with half open, quivering wings, towards another which had landed nearby (S. Scicluna pers. comm.). Unfortunately no notice of the age of the birds was taken.

The area was visited again on 10 June at 17.00hrs, but only one adult was seen, feeding on the ground for several minutes, after which it took off with a worm in its beak. On visiting the area again on 15 June at 16.45hrs, 3 fully fledged juvenile birds were observed for several minutes, feeding on the ground and perching on a wire, always together and calling each other.

The birds must have nested in some building in Floriana or Valletta and they were using the football pitch as one of the feeding areas.

Starlings have also bred and raised young on the island of Comino both in 1993 and 1994, after the local farmer had released some adult birds which he had kept in captivity. In 1993 at least one pair nested successfully and in 1994 two pairs bred and raised young. A group of 11 birds (4 adults and 7 fully fledged young) were present on Comino on 15 May 1994 (pers. obs.).

In nearby Sicily, the Starling was first recorded breeding in1979 but probably had been breeding since 1974 (Iapichino & Baglieri 1979).

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First breeding record of the Cuckoo *Cuculus canorus*

On the morning of 17 July 1993, whilst bird ringing at Rabat, a Cuckoo *Cuculus canorus* was flushed from the ground and it alighted on some bushes a few metres away fully exposed to us. It acted in the same way on the two occasions that it was flushed, giving the impression that it was either a very tame or an injured bird. Nearby a Cetti's Warbler *Cettia cetti* was heard uttering an alarm call continuously and on one occasion it was seen very close to the Cuckoo.

When subsequently the bird was mist-netted it turned out to be an immature Cuckoo. In the hand it was much smaller than an adult bird. It also showed signs of wax (ca.20mm) on the shafts of the primaries and the tail feathers. Down was also visible near the undertail coverts. It was obvious that the bird was very recently fledged and could not have moved far from its nest site.

Its measurements were: wing - 179mm; tail - 142mm; and its weight was 56g. Fat score was zero. The upper parts were black with fine white bars on the neck, giving an impression of a white patch. The primaries were very dark grey with white bars, whilst the secondaries were dark grey with chestnut bars. The tail was black with white bars, with the underside greyish white with dark bars. The beak was horn-black with a very conspicuous orange gape. The legs were of a straw to orange colour and the iris mellow brown.

The behaviour of the Cetti's Warbler indicates that it had fostered the Cuckoo. In the area the Cetti's Warbler is a common breeder with 3-4 males present all year round. The bird was not seen on subsequent visits to the site, but in a conversation with a farmer it was established that the bird was sporadically seen feeding in vineyards in the same area.

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First breeding records of Tawny Pipit *Anthus campestris*

The Tawny Pipit *Anthus campestris* is a common spring and autumn passage migrant. There is only one 'summer' record, on 9 June 1983 (Gauci 1986-87).

1st breeding record: A Tawny Pipit was observed singing from an exposed perch in a garigue area alongside the road above Dingli Cliffs on 1 July 1993 at 06.30hrs. The bird was singing on a small territory, flying from one perch to another and also perching on rocks on the ground. It was also observed in an undulating song flight. This behaviour suggested breeding and the ground was searched for a possible nest. At this time the bird circled just above our heads, singing from time to time, and landing very close to us. At one time another bird, this time a fully fledged young (tail not fully grown) approached the site, and the singing adult flew near him, after which both left in different directions. Next day, an adult and a juvenile were seen together, with the adult bird carrying a food item in its bill. On the morning of 4 July two adults, possibly male and female, and a juvenile were seen together, when one of the adults was observed feeding a worm to the young bird. The three birds were seen again on 8 July. The area was subsequently visited several times and one last bird was seen on 14 July. In most cases only one or both adults were seen, singing in the same area.

2nd breeding record: In the afternoon of 1 July 1993, a garigue area near Rdum Majesa was visited to check for possible breeding by another pair of Tawny Pipits after an adult bird had been observed singing there on 7 June. Two adult birds were located and observed together, mainly running on the rocky ground and feeding on insects. They only flew short distances and remained in the same area. At least one bird was observed in song flight. On 3 July the two birds were observed again feeding together in the same area. When one bird flew the other followed, suggesting pair bonding. One bird was again observed in song flight. The area was visited again on 5 and 8 July, two adults being seen on both occasions. Breeding was confirmed on 10 July when two adults and a fledged juvenile were seen together. One adult was seen bringing food several times and feeding it to the young bird. The young bird, although flying very well, had a shorter tail than the adults and begged for food as the adult approached with food. The juvenile bird stayed in the same area when the adult bird left to bring food. As in the previous case only one juvenile bird was seen. The birds were last seen on 16 July.

Juveniles are easily identified from adults in having more streaks on the mantle and more spots on the breast. It is also to be noted that on two occasions one of the adult birds was seen chasing Short-toed Larks *Calandrella brachydactyla* entering its territory at Rdum Majesa.

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Cory's Shearwater *Calonectris diomedea* found breeding on the east coast of Malta

The Cory's Shearwater *Calonectris diomedea* is a common breeding visitor, and its breeding grounds are situated along the southern cliffs of Malta and Gozo and on Filfla. (Sultana & Gauci 1982, Cachia-Zammit & Borg 1986-87).

In 1969, a colony of Mediterranean Shearwaters *Puffinus yelkouan* was discovered along the northeastern coast of Malta (Sultana et al. 1975) An accessible site was monitored regularly in the following years. During these visits, single Cory's have been heard calling along the cliffs and six adults have been caught and ringed up to 1992, but actual breeding had never been confirmed (MOS records).

The area was visited on 26 May 1993 to ring the young of Mediterranean Shearwaters. One nest, which was occupied by a pair of Mediterranean Shearwaters in March, was taken over by a pair of Cory's Shearwaters, and an adult male (sexed from cloacal inspection as well as by call) was found incubating. During subsequent visits, the female, as well as the young, which eventually fledged successfully, were also ringed. At least three other pairs were heard calling throughout the breeding season, from inaccessible crevices.

Unfortunately, after heavy storms in February 1994, part of the cliff gave way and tumbled down below, destroying the nesting site. In 1994, the other three pairs were present in inaccessible crevices.

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Storm Petrel *Hydrobates pelagicus* found breeding at Ta' Ċenċ, Gozo

The Storm Petrel *Hydrobates pelagicus* breeds in large numbers in the boulder and rubble slopes of Filfla (Sultana & Gauci 1982). It has never been recorded breeding elsewhere in the Maltese Islands, although in the 18th century, the historian Canon Agius de Soldanis recounted that he found a 'strange bird' (probably the Storm Petrel) breeding in a cave between Xlendi and Ta` Ċenċ cliffs in Gozo. De Soldanis wrote that small seabirds can be found in a cave called Għar Ilma, where they spend the day in crags, waiting for nightfall to fly out to sea in search of food. He mentions that a foul smell lingers where the birds are found. Fishermen assured him that these birds are not found in any other cave in Gozo or Malta. He wrote that he saw these birds both on the nest and in the hand. In size they were similar to a Song Thrush, with a black bill resembling that of a young pigeon, more

or less reddish near the eyes, and with webbed feet (National Library of Malta - MS 145a - translated into Maltese by Farrugia (1936)).

The Storm Petrel was first described from Filfla by Antonio Schembri (1843). He was informed by Maltese hunters that this petrel does not breed on the south side of Malta, Gozo and Comino, but only on Filfla. Schembri thought he had discovered a new species and named it *Thalassidroma melitensis*. However, a year later, Strickland (1844) compared specimens from Filfla and the British Isles and found them identical. Although Wright (1846) and Despott (1916) wrote that the Storm Petrel was very common on the south side of the island they never mentioned the location of any colonies breeding on the mainland.

In summer 1973 a long dead corpse of a Storm Petrel was found on a ledge in a cave at the base of Ta' Ċenċ Cliffs in Gozo (Sultana et. al. 1975). Since then the cave was visited only once in 1993 but only the Cory's Shearwater *Calonectris diomedea* was found breeding.

In summer 1994, a survey of the coastline of Gozo was initiated to estimate the breeding population and range of the Cory's Shearwater and the Mediterranean Shearwater *Puffinus yelkouan*. Particular attention was given to any signs of Storm Petrels. The first visit was organised on 18 June. Although a moderate southwesterly swell made it difficult to get close to the cliffs, JB managed to land in a cave. One young Mediterranean Shearwater was found in a shallow crevice on a shelf situated some 10m above sea-level. After noticing small droppings similar to those of Storm Petrels, an adult Storm Petrel was found incubating in a shallow crevice about 30cm deep. Unfortunately, an increasing sea-swell made it impossible to continue the search.

The cave was visited again on 25 June. This time the nest was found empty. Both incubating adult and the egg had disappeared. Inexplicably, two dead adult Storm Petrels, which could not be retrieved, were seen floating in a wide and deep shaft further in the cave. But the characteristic musky-oily smell of Storm Petrels was still strong, and faint "pipping" sounds were heard from within a deep crevice. Crawling with difficulty on sharp rocks inside the crevice, 8 sitting birds were located in an area of about 9m². Two of the three birds which were accessible were each brooding 1-2 day old chicks, while the third was incubating its egg. Other birds were heard calling deeper in the crevice. It has still to be ascertained whether this cave is the same one referred to by Agius De Soldanis.

The authors would like to thank Joseph Dunlop who took part in the first visit.

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Diet of the Barn Owl *Tyto alba* in a rural area in Gozo

The Barn Owl *Tyto alba* is a rural as well as a sub-urban species in the Maltese Islands, recorded breeding in crags on sea and inland cliffs, valleys, fortifications, bastions, and quarries (Despott 1916, Sultana & Gauci 1982). Its breeding biology has never been studied in the Maltese Islands due to several disadvantages, including the scarcity of the bird, the inaccessibility of the nest sites and the constant human persecution. The last known breeding pair was shot in 1988 (Fenech & Balzan 1988). Data on the Barn Owl's diet in Malta have been published previously by Sultana (1971), Schembri & Cachia-Zammit (1979), and Borg & Cachia-Zammit (1988). These data, together with the data collected since 1986, are presented in Table 1.

Since 1986, fifty-seven pellets were collected from below a nest site at Mġarr ix-Xini Valley, Gozo, where it was last known to breed. Some material was also collected from three other sites, also in Gozo. Five species of

Mammalia, three of Aves, one Isopoda and one Coleoptera have been identified from all the pellets which were analysed.

Table 1
No. of specimens found in pellets

Species	Sultana (1971) **20 pellets**	Schembri & Cachia-Zammit (1979) **16 pellets**	Borg & Cachia-Zammit (1988) **31 pellets**	Since 1986 **57 pellets**
Crocidura sp.	5	17	38	53
Rattus sp.	5	6	7	15
Mus domesticus	32	26	29	63
Apodemus sylvaticus	4	4	-	12
Myotis sp.	-	-	2	-
Passer hispaniolensis	5	-	4	4
Sylvia melanocephala	-	-	5	4
Delichon urbica	-	-	1	-
Coleoptera sp.	-	-	1	-
Isopoda sp.	-	-	1	-

Mus domesticus was found to be the most common prey species with a total of 150 specimens, followed by *Crocidura sp.* (113 specimens). The presence of 20 specimens of *Apodemus sylvaticus* is very interesting. This species has always been regarded as rare (Lanfranco 1969, Savona-Ventura, 1981). *Rattus sp.* was present with 33 specimens. Those collected since 1986 belonged to juvenile specimens. Three avian species were identified; *Passer hispaniolensis* (13 specimens), *Sylvia melanocephala* (9 specimens) and one *Delichon urbica*. *P. hispaniolensis* and *S. melanocephala* are common breeding residents. *P. hispaniolensis* is preyed upon throughout the year, replacing mammals during cold winter nights. Four of the specimens of *S. melanocephala* were first year birds (having skulls not being completely ossified).

It is known that Barn Owls in the Mediterranean take less prey-weight (average 19.57g) per prey item than those found in temperate zones, an average of 23.60g (Herrera 1974). In all the samples collected birds constituted only 6.7 % of the Barn Owl's prey from the study area, while 92.7 % consisted of small mammals. This may be due to the high number of small mammals in the area.

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Birds drinking nectar from Almond *Prunus dulcis* blossoms

Almond trees bear flowers of two kinds: male flowers and hermaphrodite flowers. Male flowers lack gynaecium (female part of the flower) and contain more nectar. Both types of flowers are perigynous; the receptacle forms a cup around the gynaecium. The nectar is contained within the cup (calyx) but the quantity present is very variable. In most years, examination of the inner surface of the calyx reveals only a few droplets of nectar on the

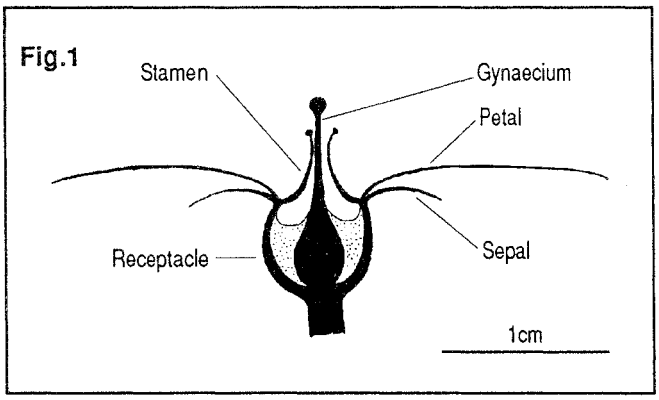

Fig. 1 A cross section of a hermaphrodite flower of *Prunus dulcis* is depicted. The quantity of nectar present on 8 Feb 1992 is represented approximately by the stipling. Male flowers contained even more nectar and the nectar was easier to reach because the calyx was wider.

nectaries. In early Feb 1992, many Almond trees bore flowers in which the calyx was almost full of nectar (see Fig. 1).

Observations were mostly limited to the weekends. Nectar feeding from Almond blossoms was only observed between the 1st and 3rd weeks of February. The frequency of nectar feeding had clearly declined by 15 Feb. Observations of nectar feeding in 1992 are summarised in Table 1.

Detailed observations were made only in 1987 and 1992. Nectar feeding from Almond blossoms was observed only once in 1987 but was common in early Feb 1992. Examination of the pattern of rainfall during Jan and Feb 1992 suggests a possible cause. Rainfall in January was higher than average (see Table 2) and rain was concentrated in the latter third of the month. It so happens that most Almond trees blossom in February. Thus the soil was at field capacity (carrying as much water as it could hold under gravity) as most blossoms started to open. Conditions of availability of water for nectar formation were thus optimal during early Feb 1992. Further studies will be necessary to elucidate the causes of the variability in production of nectar by Almond blossoms. The present study merely provides a clue that one of the factors involved might be the quantity of rain falling at a critical time.

Table 1
Observations of birds taking nectar from Almond blossoms during 1992

Date	Locality	Observations
7 Feb	Mdina	1 Chiffchaff and 1 Sardinian Warbler
8 Feb	Station Gardens, B'kara	At least 5 Spanish Sparrows, 1 Chiffchaff and 1 Sardinian Warbler
9 Feb	Station Gardens, B'kara	3-4 Spanish Sparrows and 1 Chiffchaff
9 Feb	Burmarrad	3 Chiffchaffs and 1 Sardinian Warbler
10 Feb	Station Gardens, B'kara	30 visits by ca.5 Spanish Sparrows, 3 visits by 1Chiffchaff and 1 visit by 1 Sardinian Warbler during a 20min watch at a single almond tree
10 Feb	Nr. St. Aloysius College, B'kara	2 Sardinian Warblers and 1 Chiffchaff
15 Feb	Station Gardens, B'kara	1 Chiffchaff
15 Feb	Nr. St. Aloysius College, B'kara	1 Sardinian Warbler

Table 2
Rainfall in Malta during January

Average total for January (1854 - 1953)	85mm
Average total for January (1928 - 1942)	112mm
Total for wettest January	225.6mm
Total for driest January	8.5mm
Total for January 1992	155.2mm

Data from Lamb (1972) and Malta Union of Teachers (1992) diary, quoting Meteorological Office records

Birds were observed taking nectar in three different ways:

(a) A bird would fly into the tree, move about the canopy until it found a suitably placed flower, and then it would probe the flower using its bill. Often, the bird would have to crane its neck sideways in order to probe the flower. The bird would then move on to another flower and drink nectar, spending about one to two seconds at each flower (longer in the case of sparrows). A bird would sometimes spend as long as five minutes moving about the tree in this way, but about half a minute was more typical. This method was employed by Sardinian Warblers *Sylvia melanocephala*, Chiffchaffs *Phylloscopus collybita* and Spanish Sparrows *Passer hispaniolensis*.

(b) Sometimes, Spanish Sparrows tore open the receptacle using their bill in order to get at the nectar. The other species never did this.

(c) Chiffchaffs at two localities (at least 3 different birds) were sometimes seen hovering for about 0.4 - 2.0 seconds in front of a flower, probing it with their bill. The behaviour was strikingly similar to that employed by Hummingbirds *Trochillidae* but the behaviour was so distant that it could not be determined whether the Chiffchaffs were probing far enough to be able to drink nectar.

No fighting over access to nectar was observed, although one male Sardinian Warbler was seen displacing a Chiffchaff to another part of an almond tree. This particular tree was not being used by Spanish Sparrows. If it had been, it might not have been practical for the Sardinian Warbler to defend its nectar resources.

The genus *Prunus* is found throughout the temperate Holarctic (Hora 1986). It appears to be one of the few European plants which produce sufficient nectar to allow birds to drink nectar from its flowers. Nectar feeding has only been observed rarely in Europe (see Ford 1985 for review). When flowers with abundant accessible nectar are available, nectar feeding is observed regularly (see Thake 1991). It is not known why European flowers produce such small quantities of nectar, nor why *Prunus* is an exception to this rule.

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Black Redstart *Phoenicurus ochruros* feeding on berries of Japanese Honeysuckle *Lonicera japonica*

The Black Redstart feeds principally on invertebrates but also takes fruit, particularly in late summer and autumn. Honeysuckle (*Lonicera*) figures among the plant genera whose fruit is taken (Cramp 1988).

The Japanese Honeysuckle is widely cultivated, a perennial climber which produces small black berries in early winter. The berries measure from 5-7mm in diameter. They have a sweet grapelike taste initially, but after being masticated for a second or two, a distinctly bitter taste develops. This taste might induce birds to swallow the berries whole rather than masticate them to crack the seeds, or peck at them in situ. The crushed berries release an intense deep purple pigment. The berries are not conspicuous on the bush and are probably not intended to attract bird species which feed by local enhancement (e.g. Starling), but rather they seem to be designed for use by small passerines which are familiar with the bush and its fruits.

On 17 Jan 1992, a male Black Redstart was observed in the centre of its territory, being the roof of Vilhena Palace and the adjoining bastions at Mdina. This bird was frequently observed there. It was seen flying out of a Japanese Honeysuckle bush in the inner courtyard of Vilhena Palace, and flying up to the roof. This behaviour was observed frequently, and the only bird which entered the inner courtyard was this male Black Redstart. Thus, all the droppings on the balustrade of the courtyard probably belonged to this individual. Fresh faeces deposited on the same day were examined. They were found to be watery and stained deep purple by the fruits of the Japanese Honeysuckle. Barring a most unlikely coincidence, this male Black Redstart was feeding on the fruits of the Japanese Honeysuckle at about 09.00hrs.

Given the unusual location of Japanese Honeysuckle (almost all specimens are found in private gardens), it seems unlikely that Black Redstarts feed on its fruits at all frequently, and this record is probably exceptional.

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Why do black berries often stain bird faeces?

Several plant species produce deep black or purplish-black fruits. The colour of these fruits is usually due to a concentrated solution containing Anthocyanins in the cells of the epicarp or pericarp of these fruits. Anthocyanins are easily hydrolysed to Anthocyanidins, but these too have deep colours. The Anthocyanidins produced by the breakdown of the tissues of black fruits are usually deep purplish violet. It is the high concentration of pigment which makes the fruit appear black.

An Anthocyanin is a glycoside of an Anthocyanindin. For instance, the blue colour of Delphiniums is due to the Anthocyanin, Delphinin. This consists of a single molecule of Delphinidin linked to two molecules of Glucose and molecule of 4-hydroxybenzoic acid (Finar 1968). The Anthocyanins are water soluble and readily diffuse out of damaged cells. The Anthocyanidins are not digested inside the avian intestine and emerge in the faeces.

The black fruits of Ivy *Hedera helix*, Mediterranean Buckthorn *Rhamnus alaternus*, and Blackberry *Rubus fructicosus* generally produce a purple to violet colouration in the faeces of birds which eat them. The presence of uric acid crystals in the faeces generally makes the pigment more conspicuous by diluting it and presenting it against a white background.

The study of avian frugivory is still in its infancy and we do not yet understand why fruits are coloured black, red, yellow, white, green etc, rather than their all being one colour (Snow & Snow 1988). In this short communication, it is suggested that the black colour of some fruits is intended to result in staining of the faeces. This may be one function of the pigment which is responsible for the black colour.

Why should it be advantageous to the plant to stain the faeces of its avian frugivores? Generally, an avian community will contain many species which are potentially frugivorous, and many of these birds will be utilising the same areas. Doubtless, these birds encounter one another's droppings frequently while foraging on vegetation. The purplish-violet stains in the faeces must be as conspicuous to the birds as they are to us, and it is reasonable to suppose that given the high intelligence of birds, the message conveyed to the bird is the same. The message conveyed is that somewhere in the vicinity there are black fruits which another bird has been feeding on. Black fruits are usually more difficult to detect then red fruits of the same size, particularly against a green background and at a distance (Snow & Snow 1988; pers obs.). One way of inducing birds to seek the fruits of a particular plant is by advertising the availability of fruits of that colour. All the bird has to do is look around for fruits of the appropriate colour in the general vicinity.

Perhaps fruits which are coloured red are intended to attract birds to the fruiting tree by virtue of their being visually conspicuous. Such fruiting trees can often be made out at a distance, provided that there are many fruits on the tree. The visual signal is less effective if the fruits are small or if there are only a few fruits. Thus if a tree is unable to produce many, large fruits, it might pay to produce black rather than red fruits. The black fruits stain the faeces of the few birds which start eating the fruit initially, and this alerts other birds to the availability of the fruits. Thus, a plant producing black fruits which stain the faeces, needs to produce fewer fruits in order to disperse a given number of seeds. Birds will seek out the black fruits even when they are rare and not conspicuous at all.

Fruits which are red when unripe and then turn black when ripe might be utilising a mixed strategy of fruit advertisement. The red colour makes the unripe fruits conspicuous and birds can make a mental note that fruit will be available there in the near future. The appearance of stained faeces in the vicinity serves as a reminder to the bird that the fruit which it noted earlier is now ripe. Given this information and thorough knowledge of the geography of its territory (see Shettleworth 1983), the bird would know where to look for fruit.

Thus, staining of faeces by pigments present in fruit seems to be a factor which might have affected the coevolution of fruit bearing plants and their avian frugivores.

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Spanish Sparrows *Passer hispaniolensis* feeding on swarming winged ant *Camponatus barbaricus*

On the morning of 14 July 1992, moderately large numbers of winged ants belonging to the species *Camponotus barbaricus* were observed emerging from nests in Mdina, Howard gardens in Rabat and at Fleur-de-Lys in the Birkirkara area. *Camponotus barbaricus* is the largest species of ant recorded in Malta. It is widespread. Nests are usually constructed in soil but sometimes extend under stones. Most of the nests in Mdina were in cracks in masonry. The workers are mainly nocturnal and omnivorous. This species occurs in Spain and Italy and is common in North Africa. It is one of more than 44 species which are known to occur in the Maltese islands (Schembri & Collingwood 1981, S. Schembri pers. comm.).

Emerging alates (winged male and female ants) were observed from 08.30hrs. onwards. Sparrows were watched feeding on the winged ants between 08.30hrs and 09.30hrs. Only winged ants were taken and all captures by Sparrows were made after a short (approximately 10m) flight from an elevated perch. The sparrows made no attempt to capture the winged ants as they emerged from their nests before taking flight. This may have been due to the presence of many aggressive large workers accompanying the alates at the entrance of the nests. The sparrows appeared to detect each prey item visually, flew up to make an easy capture and returned to their perch or to the ground in order to subdue their prey. Two sparrows were seen manipulating single large winged ants in their bill before eating them. A Moorish Gecko *Tarentola mauritanica* and a small Maltese Wall Lizard *Podarcis filfolensis maltensis* were also observed feeding on winged ants.

Spanish Sparrows do not usually eat the worker castes of ant species. Ant workers may not be profitable prey because of their small mass. Their powerful mandibles make it necessary to kill the ant before swallowing it. Failure to do this might result in the aggressive workers biting the lining of the crop or gizzard of the bird. Thus the handling time might be too long and the quantity of meat provided too small to justify the effort of trying to capture and subdue the workers. Alates, on the other hand are not aggressive, have weaker mandibles and seem to have a thinner cuticle. Most important of all, they are larger. Whereas living female alates which were weighed were found to have a mass of about 0.0845g, a male (weighed after it had been dead for one day) weighed 0.0055g and a worker weighed about 0.0267g. It was not possible to determine whether the sparrows were feeding on male or only on female alates. If they were feeding exclusively on females, the sparrows' choice might have been conditioned principally by the size of the females. It would be interesting to learn whether smaller species of winged ants are also eaten by the sparrows. More observations of sparrows feeding on identified species of ants are required in order to clarify this point.

The author is grateful to Professor P.J. Schembri for permission to use electrical balances, and to Mr. S.P. Schembri for identifying the ants.

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Starling *Sturnus vulgaris* hawking insects offshore

On 10 Dec 1993, at 15.45hrs., a Starling *Sturnus vulgaris* was seen flying offshore at Qawra, *ca.* 200m from the coast. It was being observed hawking insects after a heavy downpour. Suddenly the Starling dived straight into the water, making a splash. After hitting the water, the Starling flew up again with a prey item in its beak and returned back to shore.

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Swifts *Apus apus* presumably mating

While observing a large flock of hundreds of Swifts *Apus apus* at Dingli Cliffs on 5 June 1992 at 20.30hrs, two Swifts started chasing each other, screaming and shrieking. Suddenly they clasped each other and started rolling while falling down. All this took place for about ten seconds. They were presumably mating. Cramp (1985) states that although there is no proof of insemination, successful copulation in the air is thought likely.

The Swift is a common visitor between March and October but it has never been noted mating in Malta, although it has been recorded breeding by Despott (1916) early this century.

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Observations of aggressive behaviour in seabirds

On 31 March 1994 a Purple Heron *Ardea purpurea* was being observed flying on migration in a northeasterly direction off Qammieħ. On approaching the South Comino channel an adult Yellow-legged Gull *Larus cachinnans* started chasing and mobbing it. After a while, two other Yellow-legged Gulls joined in. Suddenly, the heron, with an outstretched neck, chased the gulls away and kept on its course. However the Yellow-legged Gulls returned and mobbed the heron again, giving up only after the Purple Heron had passed over Cirkewwa.

On 15 December 1990 a Great Skua *Stercorarius skua* was flying low over the water. Suddenly it flew up and chased a Yellow-legged Gull which was carrying food in its mouth. After a lot of mobbing, the Great Skua gave up its chase when the two birds had almost reached the coast. It flew back offshore.

On 4 October 1994 five Lesser Black-backed Gulls *Larus fuscus* were seen resting and feeding on the water off Qawra. The gulls flew up when a Pomarine Skua *Stercorarius pomarinus* chased them. The skua followed one gull which was carrying a fish in its beak. Only after the Lesser Black-backed Gull dropped the fish did the Pomarine Skua give up the chase. It picked up the fish and swallowed it a few metres away from the Lesser Black-backed Gulls. Both species of Skuas are rare visitors to Malta

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Melanistic Montagu's Harrier *Circus pygargus*

While observing the raptor migration at Dwejra (Malta) on 25 Sept 1994 at 08.20hrs., a small dark harrier was seen flying low. At first glance it resembled a juvenile Marsh Harrier *Circus aeruginosus* as it appeared very dark but its flight was reminisent of a ringtail harrier. When it started soaring its underparts were observed to be black with lighter primaries and secondaries. The upperparts were also very dark (black) and the bird lacked the white band on the rump.

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Does natural selection brought about by infectious diseases influence the process of speciation in seabirds and other birds?

This note presents a hypothesis which cannot be tested as yet, because the necessary data are not available. However, the author hopes that this publication will add impetus to research on seabirds and marine Pinnipeds, as well as to other fields, such as the study of bird song.

Diseases cause appreciable mortality among most vertebrates. The infectious diseases of seabirds and marine pinnipeds, by analogy to Man, might be transmitted by contact with a carrier, arthropod vectors, sexual intercourse, droplet infection, direct physical contact or by contaminated food and water. The risk of transmission of an infectious disease is undoubtedly greatest at the breeding colony, where large numbers of these animals are brought into close proximity. Natural selection ought to favour those animals which minimise the risk of contracting a disease which might be fatal to them or to their offspring.

If a seabird (or a seal) returns to its natal colony to breed year after year, the spectrum of pathogens it will risk encountering will remain roughly the same. Should it visit a neighbouring colony, the spectrum of pathogens there is likely to be different. In human communities, most dangerous diseases survive in the population at endemic levels, and epidemics are relatively uncommon. Even when an epidemic occurs, the disease does not affect all the members of the population, but only a small fraction of the population. Naturally, exceptions occur. The Black Death (an epidemic of bubonic plague which swept Europe during the 14th century) killed almost a third of the population. Generally, however, a disease survives in the population indefinitely, affecting only a handful of individuals at one time. The reason for this is believed to be as follows. People are exposed to a wide variety of pathogens. Some of the antigens possessed by rare dangerous pathogens are also possessed by relatively harmless common ones. Infection with the harmless pathogens thus conveys a low level of immunity to attack by dangerous pathogens. Should the patient then be exposed to an infection with a small number of pathogens of the dangerous type, the infection is likely to be brought under control quickly.

Such infections are called sub-clinical infections in man, and the immunity conveyed is almost as effective as vaccination against the disease. It seems likely (though as yet unproved) that sub-clinical infections are responsible for conveying immunity to a large fraction of the population, where a disease is endemic, and the disease can only infect new individuals on rare occasions. Thus the disease remains rare. It should be clear that this mechanism for widespread immunity in the community requires that the harmless pathogens should also be present. Should they be absent from a population into which the dangerous pathogen is introduced, a serious epidemic could result. This might explain why smallpox was so lethal when first introduced into Fiji by European travellers. It became less dangerous as time went by, much too quickly for genetic resistance to be a possible explanation. Limited exposure to antigens from relatively harmless pathogens is believed to be the cause of the increased susceptibility to disease of young men from well-to-do families while undergoing military training, another fact which serves to underline the importance of sub-clinical infections in conferring immunity (British Medical Association 1989).

If these principles are also applicable to other animals which suffer from infectious diseases, it is possible to argue that the prevalence of infectious diseases could influence speciation.

Suppose that a species of seabird or seal breeds on two islands which lie some distance from one another (such as Great Shearwaters *Puffinus gravis* on Tristan/Gough and the Falklands). Suppose also that the spectrum of diseases on the two island groups is different. On Tristan/Gough diseases A, B, C, and D are present while on the Falklands diseases W, X, Y, and Z are present. Suppose that diseases A and Z are lethal to adults with high probability but normally exist at low endemic levels in the population because of widespread immunity. In order to be immune to A, a bird must first contract B, C, and D, after which it must contract sub-clinical infection with pathogen A. Conversely, in order to be immune to Z, a bird must first contract W, X and Y, after which it must contract a sub-clinical infection with pathogen Z. Naturally, Tristan/Gough birds will usually be immune to A but not to Z, while Falklands birds will usually be immune to Z but not to A. A Falklands bird which visits Tristan has never been exposed to A, B, C and D, and is just as likely to contract disease A as it is to contract any other disease. Until it contracts B, C, and D in sequence it will be highly susceptible to infection with pathogen A, and may well die of this disease if it contracts it. Similar arguments apply to Tristan birds which visit the Falklands. Generalising from this argument, a seabird which visits a colony other than the natal colony might run a serious risk of mortality due to infectious diseases, if the spectrum of diseases in the colony being visited is different from that at the natal colony. Thus, it ought to pay individuals to breed at their natal colony and not at any other.

There is another reason why it pays to breed at the same colony year after year. There are a number of diseases of man which cause discomfort in adults but little else, yet can be lethal to babies. Gastroenteritis and summer diarrhoea are excellent examples. If seabirds possess similar diseases which are potentially lethal to nestlings but not to adults, fidelity to the breeding grounds is expected. This is because an adult bird will have acquired

most of the common diseases of the colony early during its life and would be unlikely to contract these same diseases again while nesting and transmit them to its chicks. Note that this protection does not extend to the chicks of adult birds which change their breeding colony frequently.

Natural selection ought to favour those individuals which breed at the same colony where they were raised. It is at their natal colony that they are likely to have the greatest fitness for the two reasons outlined above. Thus, fidelity to the natal colony is clearly predicted by the arguments presented here.

There is plenty of evidence for fidelity to the breeding site in seabirds. A case with which the author is familiar is quoted as an example. In the Maltese islands, the Storm Petrel *Hydrobates pelagicus* breeds only on the tiny islet of Filfla, and all Storm Petrels ringed locally are ringed on ringing trips to the Filfla colony. By 1988, a total of 14,194 Storm Petrels had been ringed on Filfla (Sultana & Gauci 1988). No Storm Petrel ringed on Filfla has ever been found breeding elsewhere in the Mediterranean (J. Sultana pers. comm. 1991).

By reducing gene flow between neighbouring populations, breeding site fidelity should accelerate speciation by helping to provide the reproductive isolation required for allopatric speciation. Fidelity to the breeding site goes a long way towards explaining how such wide ranging birds as seabirds could have speciated in allopatry.

Consideration of the interests of members of the colony leads to recognition of an additional factor. As an immigrant to a colony might be carrying a disease which does not occur in the colony, the immigrant is a potential threat to members of the colony. It pays members of the colony to signal to the immigrant that it is in a strange and potentially hazardous environment, while it pays the immigrant to recognise such signals and leave the colony. The mechanism by which such a scheme might operate might be as follows. Suppose that the seabirds of a population rapidly acquire social signals which convey the message that the bird belongs to a particular population. The signal might be a *learnt* variant of a call or display. Immigrants ought to be under strong selection pressure to recognise that the signal is alien, the implication being that it is in an unfamiliar colony and at serious risk of contracting a dangerous disease. It would be idle to suppose that the birds actually reason all this out. In all probability, they would evolve to feel ill at ease when surrounded by alien signals. This discomfort in the presence of alien signals is referred to here as Xenophobia. This Xenophobia should be based on the recognition by the immigrants of strangeness in the local dialect of a social signal.

Thus, if the spectrum of diseases found at various colonies of a species varies appreciably, two effects are predicted. (i) Local dialects of social signals ought to arise (ii) Individuals of a species ought to experience Xenophobia when they perceive strange signals.

Perhaps speciation by seabirds and pinnipeds is accelerated by Xenophobia. Immigrants to a colony might feel discomfort when confronted with strange animals and move off. This ought to reduce gene flow between populations and help to provide the reproductive isolation required for allopatric speciation.

The hypothesis presented here is clearly applicable to bird and mammal species which habitually breed in colonies. In addition, if a bird or a mammal species lives in two contiguous habitats across which the spectrum of pathogens differs appreciably, one would expect dialects of social signals to evolve. This should facilitate reproductive isolation and speciation if the contrast between the two habitats is sufficiently marked. It should be possible to devise a model for parapatric speciation using data from natural populations when sufficient data become available. For the moment, it should suffice to point out that many bird song dialects are associated with differences in habitat (Catchpole 1979) and even when they are not, the distribution of infectious diseases might be patchy enough to have given rise to the observed mosaic of song dialects. Some studies (quoted in Catchpole 1979) have shown that song dialects may represent one difference between populations which also differ from one another at an appreciable number of genetic loci. It remains unclear whether these song dialects arose because the populations were isolated sufficiently to differ genetically, or whether the song dialects helped to bring about the reproductive isolation which eventually led to the genetic differences, as hypothesised here.

The hypothesis presented here is incomplete in two important respects. No mention has been made of any possible mechanism by which dialects of social signals originate and become established. In addition, no reason has been advanced to explain how Xenophobia might be brought under control and speciation prevented. The hypothesis advanced here creates the impression that every isolated population should diverge to full species status, given sufficient time. This might well be untrue.

Some aspects of the hypothesis presented here are easiest to test using data collected at seabird colonies. Seabird colonies also permit a more convenient mathematical treatment of the problem, as the birds are confined to well defined geographical locations.

Finally, it should be stated that any animal intelligent enough to learn a variant of a signal and recognise strangeness in variants of that signal should show the phenomenon of fidelity to the breeding site and

Xenophobia, provided that it is sufficiently mobile for the choice to be meaningful. The phenomena are most easily observed in birds but might also be found in other animals.

The author would like to thank Dr. C.M. Perrins for commenting on an earlier draft of the manuscript.

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Male Spanish Sparrow *Passer hispaniolensis* run over by a car while fighting

Fights among Spanish Sparrows are common in February in Malta. The fighting birds flutter close together and push, grasp or scratch at one another with their feet. The fighting birds inevitably lose height, and sometimes fall to the ground, still locked in combat.

On 14 Feb1989, I was seated in a moving car on my way to work when two sparrows locked in combat appeared ahead of the car in a side road at Msida, a built-up area. They floated down to the ground just ahead of the car, and looking back through the rear window, I could see that one of the sparrows had been run over and lay crushed on the road surface. Later in the day, I returned to the scene of the incident on foot, and I could ascertain that the crushed bird was a male Spanish Sparrow.

This observation shows just how absorbed the birds were as they fought. The near approach of a bright red car passed unnoticed long enough for one of the fighting birds to be crushed by the wheels.

Clearly, models of fighting behaviour which ignore the risk of predation on the combatants by an alert predator, are simplistic when applied to fighting among prey species.

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Interspecific territorial behaviour among three species of *Turdidae* wintering in Malta

This note reports the results of several years of casual observations, and two winters in which observations were carried out more carefully. The behaviour of wintering Robins *Erithacus rubecula*, Stonechats *Saxicola torquata*, and Black Redstarts *Phoenicurus ochruros* has been observed in Malta for several years.

Their niches are largely separate because these species occupy different habitats. The habitats they occupy while they winter in Malta are listed in Table 1. The Maltese countryside is very varied topographically and severely disturbed by agriculture and urban development. As a result, many areas occur which *prima facie* might seem suitable for more than one of these species.

Table 1
The habitats of some species of Turdidae wintering in Malta

Robin	Woodland, maquis, farmland containing scattered trees and gardens
Stonechat	Rocky garigue steppe and farmland containing few trees
Black Redstart	Rocky garigue steppe near cliffs, some urban areas, especially bastions and in agricultural land at relatively low density

Table 2
Data (from Cramp 1988) relating to the niches of 3 species of Turdidae wintering in Malta

Robin
Bill length: male 14.4mm, female 14.2mm.
Weight: 17.7g.
Habitat: places where cool shady moist cover is available. Patches of open ground and song posts also necessary.
Food: Invertebrates, especially beetles, also fruit and seeds in winter.
Feeding behaviour: feeds by flying down from a perch to take prey from the ground; also feeds by hopping over the ground and picking items off the ground.

Stonechat
Bill length: male 14.9mm, female 15.1mm.
Weight: 15.3g.
Habitat: dry plains and hillsides, often submarginal for agriculture.
Food: Invertebrates.
Feeding behaviour: locates prey from an elevated perch and flies down to the ground to take it. Sometimes hawks flying prey or chases prey on the ground.

Black Redstart
Bill length: male 15.2mm, female 14.9mm.
Weight: 16.5g.
Habitat: Rocky, stony, boulder strewn, broken or craggy terrain, including cliffs.
Food: Invertebrates and fruit; sometimes seeds.
Feeding behaviour: takes items off the ground, flies down from a perch to take items off the ground and sometimes catches insects in flight.

The fact that the three species are partly separated by habitat is hardly surprising in view of the considerable degree of overlap which these birds show in size, bill length, diet and method of feeding. It is interesting to note that these three species are also separated on the breeding grounds by virtue of their occupying separate habitats (see Table 2 & more information in Cramp 1988).

Several years of observation have yielded a few instances of interspecific aggression involving these species. Over the last two years, the following instances were observed and recorded carefully.

8 Dec 1990, at San Pawl tat-Targa. Male Stonechat seen chasing a female Black Redstart off its territory.

27 Nov 1991 at Mdina. Male Stonechat seen chasing a female Black Redstart off its territory. In both instances, repeated incursions by the female Black Redstart were countered by an aggressive approach and chase by the male Stonechat.
14 Jan 1992 at Mdina. A female Black Redstart entered the territory of a Robin and perched in a tree. The Robin promptly moved towards the Black Redstart and displaced it from the tree. This female Black Redstart holds territory a short distance away from the Robin territory. The area had been watched for about half an hour daily, four days a week, over two months prior to the incident.

These incidents show quite clearly that the female Black Redstarts were regarded as intruders which could not be tolerated. Examination of Table 2 suggests that dietary overlap might be responsible for this intolerance.

These and other instances of interspecific aggression involving Robins, Stonechats and Black Redstarts seem

interpretable as follows: the Maltese countryside is very heterogeneous and disturbed, and Maltese agricultural land is a marginal habitat for all three species.

As the wintering birds arrive and settle down for the winter, they occupy territories which are unsuitable, and other species settle nearby. As competition for food sets in, one species tries to evict other species of Turdidae in order to secure a monopoly of the food resources in the area. Robins and male Stonechats often evict female Black Redstarts which have settled in agricultural land.

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First spring records of the Red-breasted Flycatcher *Ficedula parva*

The Red-breasted Flycatcher *Ficedula parva* has always been recorded in autumn in Malta, as a scarce migrant, from early September to late November (Sultana & Gauci 1982). In 1994 three birds were recorded for the first time in spring; single birds ringed on Comino on 26th and 28th respectively and one seen at Għadira Nature Reserve on 27th, all in April. All birds were either females or immature males.

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The call note of the Chiffchaff *Phylloscopus collybita* in Malta

The Chiffchaff *Phylloscopus collybita* is a very common autumn migrant and winter visitor from early October to early April with concentrations of about 200 birds in winter in areas where food is plentiful, such as Lunzjata in Gozo (Sultana & Gauci 1982). An average of 1000 Chiffchaffs are ringed every year by ringers. It seems that both the nominate race and the subspecies *abietinus* occur, but no attempt has ever been made to assess the percentage of *abietinus* ringed, as the separation of these two races is rather difficult according to Svensson (1984). Some birds do look greyer than others and sizes also differ. But biometrics are not always helpful to separate these two races as wing and tail lengths overlap to a great extent (Williamson 1976). The other subspecies *P.c. tristis* is not difficult to separate from its plumage (Svensson 1984, & pers. obs.), and 2-5 birds belonging to this race are ringed annually.

An attempt was made to try and note whether there was any difference in the call-note of Chiffchaffs which occur in Malta. The call-note which was very commonly noted was the well-known melanchonic *'hueet'*, but occasionally there was also another different call which can be best described as a low shrilled distress call *'wisst'*. Whether this call was of a particular subspecies or not, or whether it was a variance of the usual *'hueet'* could not be ascertained.

On the other hand the call-note of the *P.c. tristis* is quite distinctively different from the other Chiffchaffs' call-note. The *tristis* call can be described as resembling a chicken call *'cheep'*. This call was heard from *tristis* birds when they were feeding as well as after being released after ringing.

Williamson (1976) wrote that the call-note of *abietinus* is "said to differ from *collybita*, resembling the *cheep* of a chicken in distress". This seems to resemble more the call-note which is here described for the *tristis*.

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***JS** - 3 Sciberras Flats, Fleur de Lys Junction, Birkirkara BKR 02, Malta*

Diurnal duck migration over the Maltese Islands

Since the postulation of the 'combination' approach to bird migration, ornithological literature has witnessed an influx of evidence for leading lines. The new approach combined the two conflicting lines of thought that upheld broad and narrow fronts. It was suggested that there was indeed a broad directional trend to migration, the birds flying in a 'standard direction' typical of their particular population while over uniform terrain or the sea; but in addition there were 'leading lines', delineated by the boundaries between favourable and unfavourable terrain or particular topographical features. When migrants encounter such a factor they tend to fly along it, forming a narrow and concentrated stream. Once the obstacle or feature is surpassed the stream widens out into the broad front again (Matthews 1968). It is now ascertained that (especially) diurnal migrants respond to topographical features and often follow water courses, coastlines and ridges, more so when these are oriented in the direction of their movement (Gauthreaux 1980, & Gill 1990). These features provide a line that is easy both to perceive and follow, making it easier for a bird to compensate for any tendency of a crosswind to displace it sideways from its track. The disadvantage in using a leading line is that many birds following the same route increase the competition for potential staging areas (Baker 1984).

This preliminary note identifies a leading line effect in the sea channel that separates the two main islands of the Maltese archipelago, Malta and Gozo. It is evident from late February to early April and concerns *Anas* species mainly *A. querquedula*, *A. acuta* and *A. crecca*. Observations have been carried out by the present author mainly from Qammieħ point but also from Ċirkewwa and Ras l-Irqiqa on Comino and cover the period 1988-1995.

The Malta-Gozo channel is a 4.5km-wide (at its minimum) stretch of water. It is basically funnel-shaped with the mouth of the funnel facing west-southwest. Significantly, the mouth of the funnel consists of high ground; Ta' Ċenċ cliffs on the Gozo side and the Marfa Ridge on the Malta side. The island of Comino lies in this channel (see Fig.1). This is surely very striking topography that could be easily monitored by migrating flocks of Duck, especially so because of their laterally placed eyes. Indeed *A. platyrhynchos*, for instance, has been shown to achieve total panoramic vision without eye movements. Thus while a bird with laterally placed eyes flies towards a topographical feature, its position can be constantly monitored with respect to other features both to the sides and behind, and also to the complete celestial hemisphere above (Martin 1990).

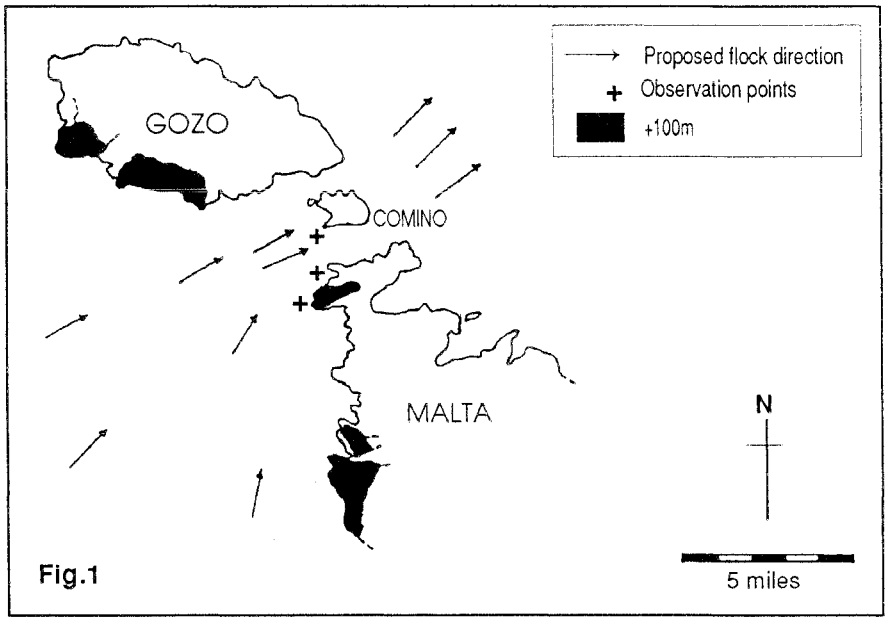

Fig.1

Evidently flocks of ducks on their spring migration approach Malta from the southwest. On encountering the mouth of the channel, they move inshore and fly between Malta and Gozo in a northeasterly direction. Often they lose height and fly close to the sea. Once in the funnel, they tend to regain height in the vicinity of Comino and reach the open sea to the northeast of Malta and Gozo once past this islet. The map shows this suggested movement. The stretch of sea is also frequently used as a partial (it offers no opportunities for feeding) staging post and flocks of ducks are frequently visible resting on the surface. On 22 Mar 1994, 4 out of 15 flocks numbering in all about 600 individuals were observed resting in the channel from 07.15hrs to 08.45hrs. At present the numbers involved surpass the one thousand mark each spring, yet this is most certainly a gross underestimation.

It is fairly safe to postulate that the Malta-Gozo channel offers an opportunity for migrating ducks to realign their direction, which seems to be northeasterly. Particularly in windy conditions, this realignment serves as a countermeasure to sideways drift that would be probable in the absence of landmarks. Indeed from February to April crosswinds, namely northwesterlies, greatly prevail over the Maltese Islands (Chetcuti *et al.* 1992). Within this framework a note by Sultana & Gauci (1982) is worth quoting, "Large passages of the commoner duck species occur on a few days in most years...On such days flocks can be seen passing offshore, sometimes near land points of the coastline...Large passages of ducks have been noted to occur mainly during north-northwesterly moderate winds".

This leading line effect presents numerous opportunities for study. Observations to date have been far from systematic and even less exhaustive. Correlations with weather variables such as wind or cloud cover are probably worthwhile investigating. In addition, other species of diurnal migrants could also be responding to the topography of the channel as could nocturnal species, utlising for instance Doppler Shift mechanisms. Surprisingly, leading lines over the Maltese Islands have received scant attention, the only notable example being Thake (1978,1980 & 1983).

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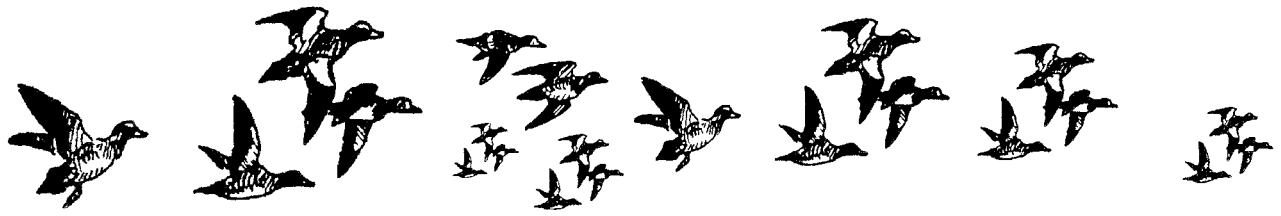

SYSTEMATIC LIST FOR 1990-1992

compiled by Charles Coleiro & John Attard Montalto

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Little Grebe *Tachybaptus ruficollis* Blonġun Żgħir

1991: 1 at Għadira on 10-12 Nov.
1992: 1 at Għadira on 10-12 Nov.

Great Crested Grebe *Podiceps cristatus* Blonġun Prim

1990: 2 sightings in Nov at Għallis: 11 on 7th and 3 on 27th. Then singles on 15 Dec at Għallis, and on 29 Dec at Dwejra, Gozo.
1991: 5 sightings of singles in Dec from 13-15th and on 18th. All at Qawra, Għallis and Manoel Island.
1992: 4 records in Nov: 10+ on 12th, 7 on 27th, 1 on 28th, all at Qawra, and 1 on 28th at Għadira.

Black-necked Grebe *Podiceps nigricollis* Blonġun Sekond

1990: Max of 16 at Għadira in early Jan, then up to 15 till late Feb when decreasing gradually to 1, with last sighting on 18 Mar. 1 on 19 Oct; then 1 from 10 Nov reaching max of 6 by 18 Dec. 3 sightings outside Għadira with 1 on 18 Nov and 2 on 9th, both at Għallis and 1 on 14 Dec.
1991: Up to 7 wintering at Għadira in Jan-Feb, then gradually decreasing to 1 from 5-21 Mar. One again at Għadira on 25-28 June, then again in Nov with first sighting on 1st and 1 on 6th, increasing to 6 by 29th and 8 from 25-31 Dec. 2 offshore sightings of singles in Dec: on 7th at Għallis and on 15th at Qawra.
1992: 8-10 from 1 Jan to 12 Mar, then 7 on 13th and 1 on 14-15th. 1 from 12 Oct to 1 Nov with 2 on 24 Oct, 3 to 8 from 14 Nov to 31 Dec. All at Għadira except for 2 at Għallis and 1 at Qawra.

Cory's Shearwater *Calonectris diomedea* Ċiefa

1990: First offshore sightings from 3 Mar, then observed from the coast till 5 Nov. Highest counts, mostly in hundreds, during strong winds. Usual numbers at colonies.
1991: First sightings on 27 Feb. Then sighted regularly offshore around the Islands in Mar-Sep. Fewer sightings in Oct-Nov, with last on 17th. Highest numbers during strong winds: mainly in hundreds, but thousands off Qbajjar on 1 Aug. Also breeding along most cliffs.
1992: First record 2 at Qammieħ on 29 Feb; last sighting 1 at Qawra on 25 Oct. Max counts 1700+ on 18 Jul off Gozo and 800+ on 20 Jul off Dingli Cliffs.

Mediterranean Shearwater *Puffinus yelkouan* Garnija

1990: Sighted offshore in Jan-Apr in single figures, and up to 20 from breeding sites with last sighting on 12 Jun. In autumn, 2 on 20 Oct and 6 sightings between 11 Nov and 15 Dec; mostly 1-5 but 10+ off Għallis on 15 Dec.
1991: Few sightings in Jan-Apr - mainly up to 5 birds; otherwise recorded from a colony till mid-June. 4 sightings in autumn : singles on 27 Oct, 3rd and 24 Nov; and 6 off Qawra on 8 Dec.
1992: Few sight records from Jan to 22 Apr, max 20+ on 30 Jan ashore at colony. 7 records from 12 Nov to end of year, max 25 off Qawra on 14 Nov.

Storm Petrel *Hydrobates pelagicus* Kanġu ta' Filfla

1990: Only recorded from Filfla in Jun-Jul when islet visited.
1991: as in 1990.
1992: 1 at Għarb on 21 Feb, 3 on 19th and 1 on 20 Jun at Għar Lapsi; otherwise only recorded at colony on Filfla.

Gannet *Sula bassana* Sula

1990: Singles on 14th and 25 Jan and 6 Apr, then 20 sightings of 1-3 on 18 dates between 3 Nov-29 Dec. Mostly off the east coast.
1991: 7 sightings of singles on 5 scattered dates from 6 Jan to 23 Mar, mostly off the NW coast of Malta. Recorded again in autumn/winter with singles on 26 Oct, 10 th, 17th and 29 Nov, and 13 sightings of 1-2 on 8 dates in Dec. Mostly off the east coast.
1992: Singles on 25 Oct and 14 Nov at Qawra and 4 on 12 Dec at Għallis.

Cormorant *Phalacrocorax carbo* Margun

1990: Singles on 9th and 11 Jan; 2 on 16 Feb; flock of 31 off Qawra on 6 Mar and 3 on 3 Apr. 4 on 29th and 1 on 30 Sep, and singles on 1st and 13 Oct; then 27 sightings on 20 dates from 1 Nov to 21 Dec, with peak in mid-Nov and early Dec. Flock of 13 at Għallis on 6 Nov highest, otherwise 1-6.
1991: 8 sightings on 8 dates from 23 Jan to 10 Apr; mainly 1-2 but 4 over Comino on 3 Apr. Again in autumn/winter with

24 sightings on 19 dates from 26 Oct to 25 Dec; mostly 1-5 but 10 over Għadira on 11 Dec. Peak from late Nov to mid-Dec.
1992: Singles on 10th and 24 Jan and 2 on 5 Apr. Sightings of 1-12 on 12 dates from 24 Oct to 19 Dec.

Bittern *Botaurus stellaris* Kappun

1990: Singles at Għadira on 15th and at Marsa (found wounded) on 26th, both in Mar. 3 reported shot at Marsa on 7 Oct.
1991: 2 reported shot at Hal Far on 1 Apr.
1992: 1 at Benghisa on 22 May.

Little Bittern *Ixobrychus minutus* Russett tas-Siġar

1990: Recorded only on spring migration with singles on 5 dates from 28 Mar to 11 Apr, then daily from 30 Apr to 6 May with 9 sightings of 1-3 birds, mainly at Għadira.
1991: In spring 19 sightings on 17 dates from 4 Apr to 22 May; all of singles except for 2 at Għadira on 16 May. In autumn recorded in singles on 8th, 13th, 21st and 25-30 Sep, 13-14th and 19 Oct. Most sightings on both migrations at Għadira and Xemxija.
1992: 10 singles recorded on 9 dates from 14 Apr to 17 May.

Night Heron *Nycticorax nycticorax* Kwakka

1990: Two sightings in Mar with 9 on 19th and 21 on 28th. Then 21 sightings on 15 dates from 2 Apr to 12 May with highest numbers on 3 Apr when several flocks were recorded at Għajn Tuffieħa and 72 birds at Xemxija. 5 other flocks of up to 32 sighted on other dates. In autumn on most days from 20 Aug to 28 Sep, when 13 flocks were recorded, highest 35 at St. Paul's Bay on first date. 2 on 4th and 1 on 9 Oct and late singles in Nov on 6th and 11th.
1991: On most days during spring migration from 4 Mar to 18 May; mostly 1-7 but 3 flocks of 14-17 from 3 different sites on 30 Mar. Mostly sighted along the coasts. Again on most days in autumn from 16 Aug to 19 Oct with peak from mid-Sep to early Oct. Mainly 1-10 but 30 at Marsa on 29 Aug and 58 over Għadira on 4 Oct. Singles on 1st and 4 Nov.
1992: First one on 5 Mar, then on 18 dates up to 27 May with max of 63 birds at 3 localities on 19 Mar. 2 on 13 Aug and regular records from 18 Aug till 14 Oct, max 21 on 5 Oct. 1 on 3 Nov.

Squacco Heron *Ardeola ralloides* Agrett Isfar

1990: 4 sightings from 3-20 Apr, highest 6 at Qammieħ on 20th, otherwise 1-3. 2 at Għadira on 1-3rd and 1 at Baħar ic-Ċagħaq on 9 May. 1 at Għar Lapsi on 1 Jun and 2 at Għallis on 20 Aug.
1991: Two sightings in Apr with 5 at Manoel Island on 16th and 10 at Għadira on 28th. 2 on 2nd and singles on 3rd and 29-30 May again at Għadira. 1 at Għallis on 26 Oct.

Cattle Egret *Bubulcus ibis* Agrett tal-Bhejjem

1990: 1 at Għadira on 30 Jun.
1992: 2 reported shot on 20 Sep at Nuffara, Gozo.

Little Egret *Egretta garzetta* Agrett Abjad

1990: 3 on 17th, then almost daily from 26 Mar to 23 Apr (peak in early Apr). Mostly in single figures but occassional flocks recorded, highest 36 at Għadira on 3rd and 46 at Qammieħ on 8 Apr. Then on most days from 29 Apr to 1 Jun; mainly 1-3 but 10 on 13 May. Most spring sightings at Għadira. Not very common in autumn: on 4 dates in Aug between 12-22nd, highest on 20th with 2 flocks of 34 and 20, otherwise in singles. Then 21 at Marsamxett on 4th and 10 sightings from 14 Sep to 15 Oct; mainly 1-3 but 11 on 11 Oct.
1991: 1-2 on 9-10th and 1 on 24 Mar. Then almost daily from 29 Mar to 17 May (1-3 daily at Għadira from 22 Apr to 17 May). Mostly 1-6, but 4 flocks of more than 10 sighted, highest 40 over Ċumnija on 17 Apr and 25 over Comino on 1 May. 1 on 24 May. Few sightings on autumn migration with 5 on 18 Aug, 10 on 4th and 2 on 17 Sep, both at Għadira. Then 10 sightings in Oct from 1st to 27th, highest 9 at Sliema on 1st, otherwise 1-5.
1992: Single at Għadira from 9-11 Mar, then almost daily from 17 Mar to 19 May. Mostly in single figures with double figures on 7 dates, highest 21 at Qammieħ and 16 at Għadira on 17 Mar and 20 at Qammieħ and 18 off Comino on 10 Apr. 1 on 4 Jun and 5 on 22 Jul. In autumn first on 12 Aug (flock of 28 at Xemxija) and 1 at Għallis on 13th. Then on 22 dates from 24 Aug to 18 Oct; mostly single figures except for 10 on 5th and 34 (8 at Għadira and 26 at Xemxija) on 6 Sep.

Great White Egret *Egretta alba* Russett Abjad

1992: 1 on 11 Sep at Għadira.

Grey Heron *Ardea cinerea* Russett Griż

1990: 6 over Għadira on 2 Feb; then on most days from 3 Mar to 21 Apr (mostly from mid-Mar to early Apr). Highest 175 from 2 sites on 8 Apr and 30 at Għar Lapsi on 10 Mar, otherwise 1-18. Singles at 2 sites on 3 May and on 23 Jul. 12 sightings of 1-5 on 8 dates from 12-30 Aug; then almost daily from 7 Sep to 28 Oct (mostly from late Sep to mid-Oct). Max 100 over Buskett on 27 Sep, otherwise in single or low double figures, max 28. Singles on 8th and 16th and 2 on 27 Nov; 3 on 4 Dec; mostly along the coasts.
1991: 1 on 14 Feb; then 13 sightings of 1-6 from 2-18 Mar. On most days from 31 Mar to 22 May (peak in Apr) mainly 1-11 but 18 on 1 Apr. In autumn singles on 25 Jul and on 1st and 16 Aug, then almost daily from 28 Aug to 13 Oct when mostly in single figures but 12 flocks of more than 10 were sighted, max 100 on 23 Sep and 69 on 4 Oct both at Għadira. On 7 dates from 18-30 Oct with a flock of 32 at Għallis on 26th highest, otherwise 1-11. Three sightings in Nov: 1 on 3rd, 2 on 22nd and 13 on 27th.
1992: 1 on 13 Feb, then almost daily in single or low double figures (on 65 dates) from 21 Feb to 2 May, max 25 on 14th and 19 Mar. Then 5 sightings of 1-4 from 14-27 May. 1 on 29 Jul, then on 44 dates from 8 Aug to 18 Oct when mostly

in single or low double figures but with totals of 153 on 11th and 120 on 26 Sep and 117 on 3 Oct. Singles on 29 Oct, 4th and 21 Nov and 12 Dec.

Purple Heron *Ardea purpurea* Russett Aħmar

1990: 1 on 25th and 3 on 29 Mar, then 15 sightings from 1 Apr to 9 May; mostly 1-5 but max of 75 at Qammieħ on 8 Apr. In autumn 6 on 29 Aug, and on 5 dates in Sep from 7th-29th, mostly 1-7 but 10 at Wied il-Luq on 29th. Singles at Għadira on 15-16 Oct.
1991: On 9 scattered dates from 18 Mar to 28 Apr, highest 6 at Għadira on 30 Apr, otherwise 1-2. Singles on 14-15 May. Most sightings at Għadira and Comino. In autumn singles on 15th and 31 Aug, followed by 4 sightings of 1-2 on 3-4 Sep.
1992: 35 at 2 sites on 23 Mar, then recorded on 9 dates from 5 Apr to1 May, max 7 on 11 Apr; 1 on 14 May. 1 on 19th and 2 on 28 Aug, then 1-5 on 5 dates from 3-27 Sep, 1on 9th and 3 on 12 Oct.

Black Stork *Ciconia nigra* Ċikonja Sewda

1990: Singles at Qala on 10 May; at Nadur (Malta) on 13th and at Buskett on 30th, both in Sep. Again 1 over Nadur (Malta) on 7 Oct.
1991: 1 at Marsalforn on 28 May; then 3 sightings in Sep with 1 at Nadur (Malta) and at Buskett on 17th and 2 again at Buskett on 21st.
1992: Singles on 16 Sep at Nadur/Dwejra (Malta), on 20 Sep over Valletta, on 25 Sep again at Nadur/Dwejra and on 7 Oct over Nadur/Dwejra and Buskett.

White Stork *Ciconia ciconia* Ċikonja Bajda

1990: Flock of 23 over Buskett/Dingli on 29 Aug, singles over Nadur (Malta) on 12th and over Buskett on 13 Sep and over Grand Harbour on 19 Dec.
1991: 4 at Ta' Qali on 9 Apr, then 2 at San Ġwann on 27th, 3 over Nadur (Malta) on 28th and 2 at Ta' Qali on 29 Aug.

Glossy Ibis *Plegadis falcinellus* Velleran

1990: Singles at Għadira on 29 Apr and 24 Jun, at Għajn Riħana also on 24 Jun and a flock of 9 over Għadira Bay on 21 Oct.
1991: 8 sightings on 5 dates from 30 Mar to 17 Apr, highest 65 on 30th and 20 on 31st, both at Qammieħ, and 20 over iċ-Ċumnija on 17 Apr, otherwise 1-3. 1 at Għadira on 1 Oct.
1992: 1 on 17 Sep at Xemxija, 7 on 26 Sep off Valletta Breakwater and 3 on 16 Oct at Għallis.

Spoonbill *Platalea leucorodia* Paletta

1991: 1 at Qammieħ on 4 May, 2 at Qawra on 24-26 Jul, 2 at Mistra on 7 Aug and 1 at St. Elmo Pt. on 4 Oct.
1992: 1 on 1 Sep at Għallis.

Greater Flamingo *Phoenicopterus ruber* Fjamingu

1990: 4 off Għallis on 11 Nov.
1991: 14 off iċ-Ċumnija on 14 Apr.
1992: 35 on 7 Aug at Xemxija; 20+ on 19 Sep off Ċirkewwa; 32 on 5 Oct over Għadira and 6 on 25 Nov off Għallis.

Greylag Goose *Anser anser* Wiżża Griża

1990: 1 at Qawra on 16 Dec.
1992: 1 on 16 Nov at Qawra and 1 over Għadira the following day.

"Grey Geese"

1991: 3 over Ħas-Saptan on 13 Jan and 5 at Qawra on 6 Dec.

Shelduck *Tadorna tadorna* Kuluvert tas-Salib

1990: 3 sightings in Mar: 20 on 10th, 10 on 19th and 2 on 22nd, all at Qammieħ. In autumn, 4 on 13th, 1 on 19th and 15 on 24 Nov, then on 5 dates in Dec: on 7-9th and 14-15th, max of 34 on 9th, otherwise 1-3. Dec sightings off Għallis.
1991: Singles in Jan on 15th and 25-26th, then a flock of 25 off Qammieħ on 10 Mar. On 7 dates in Nov with 5 at Għadira on 2-3rd, 10 on 10th and 4 sightings from 24-27th, mainly 1-3 but 13 on 27th. Almost daily in Dec from 4-15th, highest 50 at Qawra on 14th. 21 at same place on 15th, 19 at Għallis on 12th and 16 again at Qawra on 6th, otherwise 1-10. All Nov/Dec sightings off the east coast of Malta.
1992: 2 on 5-6th, then 1 till 14 Jan at Għadira. 20+ on 20 Apr off Qammieħ. Up to 21 birds on 4 days from 21 Nov to 11 Dec.

Wigeon *Anas penelope* Silfjun Ewropew

1990: 1 present at Għadira from 1 Jan to 13 Feb. 23+ on 10th and 41+ on 22 Mar off Qammieħ. On 4 dates in Nov with 1 at Għadira on 2nd, 25 on 4th, 23 on 6th and 4 on 10th, all at Għallis. 9 sightings in Dec from 2nd-13th with max of 58 on 5th, 24 on 6th and 13 on 2nd, all at Għallis, otherwise 1-5.
1991: Only in autumn/winter with 15 at Għallis on 26th and 12 at Tas-Safra on 27 Oct, and singles on 2nd and 23 Nov. Then daily from 28 Nov to 31 Dec (1-4 daily at Għadira). 7 flocks of more than 7 recorded with max of 45 on 29 Nov at Tas-Safra, 27 at Għadira on 14th and 25 at Qawra on 13 Dec.
1992: 1-3 from 1st to 14 Jan and 1 from 31 Jan to 15 Mar, all at Għadira, 3 at Qammieħ 15 Mar. 1 to 40 recorded on 6 dates from 18 Oct to 4 Dec.

Gadwall *Anas strepera* Kuluvert Griż

1990: 2 at Għadira on 10 Jan.
1991: 2 on 3rd and 4 on 8 Dec at Qawra.

Teal *Anas crecca* Sarsella

1990: 4 wintered at Għadira from 1 Jan - 7 Mar, then on 7 dates at same place from 9-29 Sep; singles except for 2 on 28th. Again singles on 13 Oct, 10th, 16-17th and 26 Nov. Almost daily at Għadira from 4-29 Dec, mainly 1-3 but 13 on 5th. 40 off Għallis on 5th and 1 at Xemxija on 11th.
1991: 1 on 22 Jan, 3 on 4th and 16 Sep, 1 on 8th and 2 on 13 Nov; then daily from 5 Dec to end of year: mainly 1-5 but 11 on 11th. All at Għadira. Only 5 sightings elsewhere: 1 at Xemxija on 15 Jan, 1 on 24 Nov; 6 and 2 at two different sites on 8th and 2 on 13 Dec, all at Qawra and Għallis.
1992: 1-3 at Għadira from 1 Jan to 15 Mar with 4 on 24 Feb and 6 on 8 Mar. 1 on 19 Jul at Nadur, Gozo, 1 on 22 Aug at Ramla Valley and 1 on 29 Sep at Għadira. 1-3 on 5 dates from 5 Nov to 4 Dec at Għadira.

Mallard *Anas platyrhynchos* Kuluvert

1990: 1 at Għadira from 1 Jan to 9 Mar.
1991: 1 at Ramla Valley on 29 Sep and 1-2 daily at Għadira in Dec from 11-31st. 6 sightings elsewhere from 8-15 Dec: mainly of 1-4 birds but 20 at Ramla Bay on 13th and 13 at Għallis on 12th.
1992: 1-4 from 1 Jan to 31 Mar at Għadira. An injured, but fully recovered, wild female released at Għadira bred with a feral male and hatched a brood of 13 on 30 Mar; 9 fledged and remained on the reserve until 15 Jul when they left. 1 on 1 Aug at Ramla, Gozo and 2 on 27 Dec at Għar Lapsi.

Pintail *Anas acuta* Silfjun

1990: 25 at Qammieħ on 17 Feb and on 4 dates in Mar: 1 on 9th, 145+ at Qammieħ on 10th and flocks of 25 on 11th and 16th. Then 8 on 5th and 7 on 8 Apr at Qammieħ. In autumn 11 sightings on 9 dates from 9 Oct to 11 Nov; mainly 1-9 but 22 on 20 Oct, 59 on 4th, 23 on 6th and 68 on 7 Nov, all at Għallis. 1 on 28 Nov.
1991: Only one sighting in spring : 25 at Qammieħ on 28 Mar. In autumn, singles on 3-5 Sep, then on 16 dates from 28 Sep to 13 Dec with most in late Oct and mid-late Nov. Mainly single to low double figures, max 29, but 130 at Għadira on 26 Oct and 35 on 21st and 39 on 24 Nov, both at Qawra.
1992: 6 on 1 Jan, 2 on 20th and 17 on 21 Feb, then daily passages from 14th to 17 Mar, max 165 on 15th. Recorded on 6 dates from 9 Oct to 10 Dec, max c150 over Xemxija on 12 Oct.

Garganey *Anas querquedula* Sarsella Ħamra

1990: 30 at Qammieħ on 17 Feb; then 1-6 daily at Għadira from 5 Mar to 18 Apr. 10 sightings elsewhere from 10 Mar to 13 Apr, mostly 1-25 but max of 200 at Qammieħ on 1 Apr. Most sightings off the NW coast of Malta. Then recorded on 3 May, 17th and 31 Aug, 1st, 6th and 21 Sep, and 11-12 Oct; all at Għadira - singles except for 3 on 6 Sep.
1991: Only in spring when daily at Għadira from 27 Feb to 2 Apr, mainly 1-5 but 7 on 5 Mar. Also on 5 dates in Mar at Qammieħ: on 9-10th, 17th and 28-29th, highest 30 on 9th and 65 on 28th, otherwise 2-15.
1992: Passage from 17th to 22 Mar, with 220 on 18th off Qammieħ being the highest. 1 on 11 Apr, 3 on 6 Aug and 2 on 9 Sep.

Shoveler *Anas clypeata* Palettuna

1990: 1 at St. Andrews on 11 Nov; then on 4 dates in Dec with 4 on 5th and singles on 8th, 11th (all at Għallis) and on 26th at Chadwick Lakes.
1991: Only in autumn with 1 on 4th, 13 on 21st and 30 on 22 Nov; last two sightings at Qawra. 9 sightings on 5 dates from 3-13 Dec, mostly of 1-7, but 44 off Qawra on 3rd.
1992: 1 female at Għadira on 23 Feb.

Pochard *Aythya ferina* Brajmla

1990: Singles at Għadira from 1 Jan to 1 Mar; 30 Mar to 26 Apr and on 2 Jun. Then 1 on 30 Nov and 2 on 1 Dec, both at Għallis.
1991: Flock of 15 off Qawra on 3 Dec.
1992: 1 female from 15 Feb to 13 Mar, and 1 male on 5 Nov, both at Għadira.

Ferruginous Duck *Aythya nyroca* Brajmla t'Għajnha Bajda

1990: 7 at Migra l-Ferħa on 11 Mar and 1 at Għadira from 18 Apr to 4 May.
1991: Singles at Għadira on 28 Mar, 1st and 15 Apr and 3 Jul.
1992: 1 male at Qammieħ 18 Mar, 1 male at Xemxija on 25-26 Aug, and 1 at Għadira on 15 Oct.

Goldeneye *Bucephala clangula* Brajmla ta' l-Għajn

1992: 1 female at Għadira from 12th to 20 Apr.

Red-breasted Merganser *Mergus serrator* Serra

1990: 2 at Qammieħ on 10 Mar. On 4 dates in Nov with 1 at Xemxija on 9th, 6 off Għallis on 10th, 4 off Qawra on 24th and 1 at Għallis on 25th. Then singles on 1st, 9th and 14 Dec at Għallis.
1991: On 8 dates from 10 Nov-22 Dec: in singles but max of 7 on 23 Nov and 9 at Qawra on 14 Dec. Mostly off the E coast of Malta.
1992: 1 at Għallis on 6 Dec.

Unidentified Duck sp.

1990: 20-25 on 3 dates from 13-18 Feb; then almost daily from 9 Mar-4 Apr mostly in low double to low treble figures (up to 175), but max of 220 off Qammieħ on 13 Mar. 15 on 26 Aug. Then on most days from 5 Oct-11 Dec, with peaks in early Nov and early Dec. Mostly in single to high double figures but 107 on 3rd, 150 on 4th, 140 on 7 Nov and 106 on 5 Dec. Most sightings off Għallis.
1991: 19 on 14 Jan, then 9 sightings from 27 Feb to 1 Apr; mainly 11-25, but max of 180 on 1st and 65 on 28 Mar, both at Qammieħ. 20 on 1 Sep, then on most days from 12 Oct to 22 Dec with peaks in late Oct and from mid-Nov to mid- Dec. Mostly in single to medium double figures of up to 63 but max of 100 at Għallis on 26 Oct and 110 at Qawra on 3 Dec.
1992: 5 on 1 Mar, and almost daily from 14 Mar to 22 Mar, max 310 on 18th. 2 on 4 Aug. 1-150 on 18 dates from 5 Sep to 26 Dec.

Honey Buzzard *Pernis apivorus* Kuċċarda

1990: In spring 2 on 28 Mar and 1 on 26 Apr; then 17 sightings on 9 dates from 10 May - 1 Jun; mostly 1-3 but max of 100 over Gozo on 10th and 13-35 on 3 other dates. In autumn singles on 25th and 30-31 Aug and 1-9 on 4 dates from 4-9 Sep, then daily from 12th on to 8 Oct with a peak from 14-18 Sep and 30 Sep - 1 Oct. Single to medium double figures, but 144 (2 sites) on 15th, 99 (2 sites) on 17th, 119 (3 sites) on 30 Sep and 73 (2 sites) on 1 Oct. 1 on 24 Oct. Most autumn sightings at Buskett and Nadur (Malta).
1991: In spring 1-3 on 5 dates from 1-28 Apr and 1-3 daily from 8-11th and 13-16 May, with most sightings from Comino. 2 on 4th, 1 on 5th and 9 (at Sta. Lucia) on 18 Jun. In autumn almost daily from 29 Aug to 10 Oct (daily from 16-27 Sep), with a peak on 20-22 Sep. Single to double figures of up to 41, but 51 (1 site) on 6th, 78 (2 sites) on 20th, 186 (3 sites) on 21st and 134 (2 sites) on 22nd, all in Sep. 1-2 on 17-18th and 1 on 23 Oct. Most autumn sightings at Buskett and Nadur (Malta).
1992: Singles on 25 Mar and 10 Apr, then passage from 24 Apr to 26 May, with 1-24 birds on 20 dates, max on 7 May. 1 on 24 Aug, then passage from 7 Sep to 9 Oct, with 1 to 209+ on 32 dates. Max on 25 Sep with 209 at Buskett and 59 records at other localities. 2 on 22 Oct and 1 on 1 Nov.

Black Kite *Milvus migrans* Astun Iswed

1990: Four sightings in spring: 1 on 29 Mar, 2 on 4th and singles on 6-7 Apr; most at Qammieħ. In autumn on 7 dates from 30 Aug to 4 Oct; singles except for 6 at Buskett on 8 Sep.
1991: 1 on 14th and 5 on 29 Mar at Qammieħ, then 8 sightings in Apr with 2 on 1st and 1-3 on 6 dates from 14-27th. In autumn 6 sightings of singles from 15 Aug to 21 Sep, mainly at Buskett.
1992: 11 singles on 9 dates from 18 Apr to 17 May. In autumn 8 records on 7 days from 16th to 25 Sep; all singles except for 2 on 22nd.

Red Kite *Milvus milvus* Astun Aħmar

1990: Singles at Madliena on 13 Sep and at Nadur, Malta on 4 Oct.

Egyptian Vulture *Neophron percnopterus* Avultun Abjad

1990: Singles at Buskett and Nadur (Malta) on 12 Sep.
1992: 1 reported shot at Għarb on 16th and 1 at Buskett on 19 Sep.

Short-toed Eagle *Circaetus gallicus* Ajkla Bajda

1990: Singles at Buskett on 15 Sep and on 2 Oct.
1991: Singles at Nadur (Malta) on 3rd and at Buskett on 4 Oct.
1992: Singles at Buskett on 4th and at Għadira on 18th and 3 at Buskett on 21st, all in Sep.

Marsh Harrier *Circus aeruginosus* Bagħdan Aħmar

1990: Almost daily in spring from 15 Mar to 29 Apr (mostly in late Mar, early and late Apr). Mainly in single figures but 7 sightings of more than 10, highest 40+ at Għallis on 21 Apr and 30+ at Dwejra (Malta) on 25 Mar. Singles in May on 12th, 15th and 19th. In autumn from 23 Aug to 13 Oct (daily from 12 Sep to 10 Oct) with main migration period from 5-30 Sep. Single to double figures of up to 72 but 149 (3 sites) on 15th, 162 (2 sites) on 17th, and 103 (2 sites) on 18 Sep. Most autumn sightings at Buskett and Nadur (Malta).
1991: Spring passage from 9 Mar; mainly 1-10 but 20 at Dwejra (Malta) on 16th. Main migration period in Apr with max of 42 at Wied il-Kapuċċini on 1st, 50 at Salina on 5th, c.100 over Gozo on 16th and 40 at Tas-Safra on 20th, otherwise 1-20. 1-5 birds on most days after 20 Apr and on to 17 May. Almost daily in autumn from 27 Aug to 21 Oct with main migration period between 15 Sep and 5 Oct, peaking on 19-25 Sep. Mostly in single to double figures of up to 40, but 66 (2 sites) on 19th, 115 (2 sites) on 20th, 239 (2 sites) on 21st, 104 (2 sites) on 22nd and 73 (2 sites) on 25th. Most autumn sightings from Buskett and Nadur (Malta).
1992: Recorded on 50 days from 6 Mar to 31 May in spring with max of 47 on 25 April. In autumn on 47 days from 24 Aug-31 Oct, with peak from 11 Sep to 7 Oct. Max. 80 on 21 Sep and 84 on 6 Oct at Buskett.

Hen Harrier *Circus cyaneus* Bagħdan Abjad Prim

1990: 1 female at Marsalforn Valley on 3 Feb and 1 (shot) at Binġemma on 9 Apr.
1991: Three sightings in Apr with 1 at Salina on 16th, 4 at Tarġa Gap on 18th and a male at Comino on 21st. 1 female at Buskett on 10 Sep and 1 male at tas-Safra on 22 Nov.
1992: Singles at Xewkija on 28 Feb and at Dwejra, Malta on 16 Sep.

Pallid Harrier *Circus macrourus* Bagħdan Abjad

1990: 1 at Dwejra (Malta) on 11 Apr.
1991: Single males at Salina on 8 Apr and at Buskett on 22 Sep.

Montagu's Harrier *Circus pygargus* Bagħdan Griż

1990: Six sightings of singles from 3-27 Apr. In autumn on 3 dates in Sep with 2 at Nadur (Malta) on 5th and singles on 9th and 27th.
1991: Singles in March on 24th, 26th and 29th; then 8 sightings on 6 dates in Apr from 11-24th. Mostly 1-2 but 8 on Comino on 24th. In autumn 4 sightings of 1-2 on 3 dates from 27 Aug to 1 Sep and 1 on 21 Sep. Autumn sightings at Buskett and Nadur (Malta).
1992: 6 records of 1-4 from 5 Apr to 6 May. In autumn 5 sightings of 1-3 from 12 Sep to 1 Oct.

Harrier Sp. *Circus sp* Bagħdan

1990: 9 sightings on 6 dates from 2-29 Apr, mostly 1-4 but 120+ were reported shot off Marsalforn on 22nd. In autumn 8 sightings in Sep from 5-27th, mostly 1-3 but 5 at Buskett on 9th.
1991: Singles on 7 Feb and 2 Mar then 13 sightings of 1-3 on 9 dates from 25 Mar - 24 Apr and singles in May on 2nd, 9-10th and 24th. Most sightings at Comino. In autumn 15 sightings on 10 dates from 28 Aug to 25 Sep, mainly 1-5 but 19 at Buskett on 1 Sep.
1992: 1 on 24 Mar, 13 records of 1-6 from 8 Apr to 7 May. 1 on 29 Aug, then on 10 dates from 12 Sep to 9 Oct, max 27 on 20 Sep. Most records were identified as ringtails.

Sparrowhawk *Accipter nisus* Sparvier

1990: Singles at Ramla Valley on 21-22 Apr. In autumn 11 sightings from 12 Sep - 24 Oct; highest 4 at Buskett on 30 Sep, otherwise 1-3. Most sightings at Buskett.
1991: 4 sightings of 1-3 on 20-21 Sep and 6 sightings of 1-3 On 5-16 Oct. Mostly at Buskett and Nadur (Malta). 1 on 2 Nov.
1992: 1 at Buskett on 22 Oct.

Buzzard *Buteo buteo* Kuċċarda Prima

1990: Singles at Buskett on 1st and 3 Oct and on 11 Nov, and at Luqa on 12 Nov.
1991: 1 on Comino on 19 Mar.
1992: 1 on Comino on 10 May. 1-2 on 7 dates from 17 Sep to 20 Oct, then 1 at Għallis on 8 Dec.

Lesser Spotted Eagle *Aquila pomarina* Ajkla tat-Tikki

1992: Singles on 23rd and 24 Sep over Nadur/Dwejra (Malta).

Booted Eagle *Hieraaetus pennatus* Ajkla tal-Kalzetti

1990: 1 at Wardija Pt. on 14 Sep.
1991: 3 sightings of singles in Sep: at Nadur (Malta) on 19th and 26th (dark phase) and at Buskett on 27th.
1992: 1 pale phase at Nuffara, Gozo on 24 Sep, 1 at L-Aħrax on 29 Sep and 1 at Buskett on 22 Nov.

Griffon Vulture *Gyps fulvus* Avultun Prim

1991: 1 shot near Filfla on 6 Oct.

Osprey *Pandion haliaetus* Arpa

1990: 1 at Dwejra (Malta)(shot) on 1st and 2 on Comino on 26 Apr were the only spring records. In autumn 1 on 22 Aug, then almost daily in Sep from 5-30th, with 28 sightings of 1-3, but max of 4 at Nadur (Malta) on 15th. 5 sightings of 1-2 in Oct on 5-6th, 8th and 19th. Almost all sightings at Buskett and Nadur (Malta).
1991: 3 sightings of singles in Apr: at Hal Far on 1st and at Għadira and Comino on 23rd. Main autumn migration from 31 Aug to 29 Sep with 18 sightings of 1-2 on 15 dates. In Oct, singles on 4th (2 sites) and 13th. Most sightings at Buskett and Nadur (Malta).
1992: Singles on 19th and 26 Mar, 6 Apr, and on 4 dates from 2nd to 7 May. In autumn 1 to 3 recorded on 19 dates from 3 Sep to 7 Oct.

Unidentified Broadwings

1990: Almost daily from 5 Sep to 7 Oct, mostly in single to low double figures with max of 32 at Buskett on 18 Sep. 1 on 18 Oct.
1991: Singles on 29th and 31 Mar. On most days in autumn from 5 Sep-13 Oct with 38 at Nadur (Malta) on 21 Sep highest, otherwise 1-5.
1992: 1-2 on 3 days from 6th to 13 May. 1 on 16 Aug, then up to 28 almost daily from 6 Sep to 11 Oct and 1 on 21 Oct.

Lesser Kestrel *Falco naumanni* Spanjulett Sekond

1990: 1 on 23 Mar. In autumn 17 sightings on 14 dates from 5 Sep to 7 Oct. Mostly 1-3 but 6 on 28 Sep and 5 on 5 Oct. Except for one, all sightings at Buskett and Nadur (Malta).
1991: Singles on 28 Mar and 27 Apr. In autumn, 6 sightings of 1-4 on 20-21st and 25-26 Sep; then singles on 3rd, 5th and 14 Oct. Almost all sightings at Buskett and Nadur (Malta).
1992: Singles on 20th and 21 Apr and 1st and 6 May. In autumn 1-7 on 16 days from 12 Sep to 7 Oct, max 7 on 20 Sep.

Kestrel *Falco tinnunculus* Spanjulett

1990: Singles on 6th and 20 Jan, and on 11th and 20 Feb. Almost daily in spring from 7 Mar-30 Apr, with most sightings from late Mar to mid-Apr. In single figures, with max of 8 at Qammieħ on 7 Apr. Then 1-2 on 8 dates from 8-31 May and singles on 13th and 28 Jun. First autumn sighting on 12 Aug, then 1-4 on 12 dates to 20 Sep. However main migration period 22 Sep to 14 Oct when daily; mostly 1-10 but 22 at Nadur (Malta) on 7th and 25 at Buskett on 8 Oct. 1-2 on 13 dates from 18 Oct to 6 Nov and singles on 25 Nov and 29-30 Dec.
1991: 2 on 7th and 13 Feb; then almost daily from 24 Feb to 12 May with most sightings from mid-Mar to late Apr. Highest numbers in mid-Mar with 15 at Lunzjata on 16th, and in early Apr, with 15 at Comino on 3rd, otherwise 1-10. 1 on 11 Jun. On 10 dates from 2 Aug to 14 Sep; in singles, but 2 on 5 Sep, then almost daily from 17 Sep to 25 Oct, with highest numbers in late Sep with 20 at Nadur (Malta) on 25th, and in mid-Oct with 10 at Ta' Kuljat on 12th and 15 at Nadur (Malta) on 13th. On 10 dates from 3-28 Nov and 7 dates from 11-31 Dec; all singles except for 2 at Sarraflu on 30 Dec.
1992: 13 sightings of 1-3 in Jan-Mar 1st. Spring passage almost daily from 7 Mar to 14 May, max 12 on 8 Mar. Singles on 22 May, 1 Jun and 14 Jul. 4 singles from 20 Aug, then passage on most days from 11 Sep to 9 Nov, max 36 on 27 Sep and 3 Oct. Singles on 14 Nov, 11th and 24 Dec.

Kestrel Sp.

1990: 1-2 on 12-14 Sep, daily from 21 Sep-8 Oct. In single figures, but 10 on 29 Sep and 12 on 7 Oct, both at Nadur (Malta).
1991: Singles on 24th and 28 Mar; then on most days from 7 Sep-13 Oct (daily from 17-27 Sep). Mostly 1-10 but 50+ at Nadur (Malta) on 25 Sep.

Red-footed Falcon *Falco vespertinus* Żumbrell

1990: Singles at 2 sites on 25 Apr and at 3 sites on 1 May. In autumn singles on 14th and 30 Sep.
1991: On 5 dates in Apr: on 2nd, 23rd, 25-26th and 29th; in singles, except for 4 at Comino on 25th. Then singles on 12th, 17th and 26th May and on 2 Jun. In autumn singles on 6 dates from 18 Sep - 20 Oct, mostly at Nadur (Malta).
1992: Recorded on 17 dates from 9 Apr to 31 May, max 14 on 25 Apr on Comino. In autumn 1-5 on 4 dates from 17 Sep to 6 Oct.

Hobby *Falco subbuteo* Seqer tal-Ħannieqa

1990: 1-4 on 9 dates in spring from 3 Apr to 19 May (most in late Apr). More evident in autumn with 3 on 12th and 1 on 15th, then almost daily from 31 Aug-8 Oct. Mostly 1-8 but 14 at Buskett on 30 Sep and 11 at Nadur (Malta) on 3 Oct. 7 sightings of 1-4 on 4 dates from 13-20 Oct. Most autumn sightings at Buskett and Nadur (Malta).
1991: On 9 dates in spring from 11 Apr to 22 May; in singles except for 2 at Buskett on 14 May. 1 on 31 Jul. In autumn almost daily from 31 Aug to 16 Oct with higher numbers in mid-late Sep: 6 on 20th, 9 on 25th and 10 on 26th (all at Buskett), otherwise 1-5.
1992: Spring passage on 19 dates from 5 Apr - 6 May, max 12 on 25 Apr. Singles on 3 days from 30 May to 6 Jun. On autumn passage almost daily from 3 Sep-16 Oct, max 9 on 6 Oct.

Eleonora's Falcon *Falco eleonorae* Bies tar-Reġina

1990: Singles on 5 dates in spring: on 22 Mar, 25th and 28-29 Apr and 19 May. 7 sightings of singles from 1-23 Sep and 5 sightings of 1-3 from 2-13 Oct. Most autumn records at Buskett and Nadur (Malta).
1991: 2 on 5 Apr at Salina and singles on 11 May and 15 Jun. On 8 dates from 23 Aug-25 Sep; mostly in singles, but 3 at Nadur (Malta) on 28th and 2 at Buskett on 31st both in Aug. 2 on 5th and 1 on 6 Oct.
1992: 1 on 30 Apr, 3 on 30 May and 1 on 22 Jun, 3 singles in Jul, 4 records of 1-2 in Aug and 1-2 on 11 dates from 2 Sep to 31 Oct.

Saker *Falco cherrug* Bies Rasu Bajda

1990: 1 at Buskett on 4 Oct.

Peregrine *Falco peregrinus* Bies

1990: Singles at Qammieħ on 29 Mar, at Għarb on 23 Jun, at Nadur (Malta) on 30 Sep and 4 Oct, at Għadira on 14 Oct and at Għallis on 10 Nov.
1991: Singles at Xemxija on 24th and at Dingli Cliffs (shot) on 31 Mar, over Comino on 7 Apr, at Għadira on 19 Jun and in Oct at Nadur (Malta) on 2nd and at Comino on 13th and 15th.
1992: Singles at Wardija on 8th, at Għar Lapsi on 15th and at Qammieħ on 28 Mar, on Comino on 25-26 Apr and at Dingli Cliffs on 18 May. Pair at Għarb on 29 Jun. Singles at Ta' Ċenċ on 17th and at Għajn Riħana on 18 Jul, at Ta'Ċenċ on 9th and at San Dimitri on 19 Aug, at Għarb on 28 Sep and at Valletta on 2 Nov.

Quail *Coturnix coturnix* Summiena

1990: 1 on 12 Feb; then 8 sightings of 1-2 from 14 Mar to 24 Apr. Singles on 19-20 May then on 7th and 10 Oct and 16 Nov.
1991: Poor year with only a few sightings of singles: at Birżebbuġa on 1st, at Xemxija on 12th and at Qammieħ on 16th, all in Mar. Then on Manoel Island on 1 Apr and in Oct at Għadira on 23rd and at Sliema on 29th.
1992: 1 on 13-14 Feb, then 1-2 on 13 dates from 8 Mar to 30 Apr. Singles on 6 Jun, 5th and 22 Aug. 1-3 on 8 dates from 18 Sep to 11 Oct. Singles at Benghisa on 2nd and at Lunzjata on 14 Nov.

Water Rail *Rallus aquaticus* Gallozz tax-Xitwa

1990: Up to 5 in Jan-Feb to 9th, then 1-3 till 12 Mar. All at Għadira except for 1 at Ramla Valley on 11 Mar. Again at Għadira from 5 Oct, with singles on a few days to 28 Nov when 2-3 sighted frequently till end of year. Max of 4 on 17 Dec.

1991: 1-2 wintering at Għadira in Jan-Mar to 6th and singles on 15th and 23 Mar and on 11 Apr. 1 at Lunzjata on 12 Jan. In autumn 1 at Xemxija on 25 Oct then again at Għadira from 4 Nov to 31 Dec; mostly 1-3 but 4 on 2 dates in mid-Nov and 5 on 5 dates in mid- late Dec.
1992: 1-5 in Jan-Mar to 30th. 1-5 from 14 Sep to 31 Dec. All at Għadira. 1 at Lunzjata on 31 Dec.

Spotted Crake *Porzana porzana* Gallozz tat-Tikki

1990: 1 on 26 Mar, 1-2 on 3-4 Apr and 1 on 9 May, all at Għadira and Xemxija. In autumn 2 at Xemxija on 7th, then at Għadira on 13 dates from 11 Oct-10 Nov. In singles except for 2 on 15 Oct.
1991: 1 at Għajnsielem on 1 Apr, then in Oct on 9 dates at Għadira from 5-23rd, at Ramla Valley on 6th and at Salina on 26th. All singles except for 2 at Għadira on 14 Oct.
1992: Singles on 12th and 29 Mar, 27-28 Apr and 3 May, all at Għadira. 3 at Ramla Valley on 1-2 Aug and 1 at Għadira on 28 Aug.

Little Crake *Porzana parva* Gallozz Żgħir

1990: Singles at Salina on 17 Apr and at Lunzjata on 1 May.
1991: Singles at Għadira from 1-7 Apr and on 30 May.
1992: 1 male on 12 Mar, 1 on 5 Apr, 1 male on 1st and 7 May, all at Għadira.

Baillon's Crake *Porzana pusilla* Gallozz tal-Faxxi

1990: 1 found dead at Għadira on 18 Apr.
1992: 1 at Għadira on 8 Mar.

Corncrake *Crex crex* Gallozz Aħmar

1991: 1 at Xemxija on 22 Sep.

Moorhen *Gallinula chloropus* Gallozz Iswed

1990: Daily at Għadira from Jan to mid-May; mostly up to 15 but 20 on a few dates from late Feb to early Apr and max of 25 on 9 Mar. 33 sightings outside Għadira with most at Xemxija in Mar-Apr. Mainly 1-4 but max of 14 at Għajnsielem. Irregular sightings from late May to late Aug, mainly at Għadira and also from two other sites; singles but max of 16 at Għajnsielem. Again at Għadira with 1-4 in Sep, then daily till end of year; up to 10 from late Oct, reaching 15 by mid-Dec. 23 sightings of 1-5 outside Għadira in Oct-Dec, mostly at Xemxija, with max of 12 at Għajnsielem on 31 Dec.
1991: Daily at Għadira from Jan to late Apr; highest 15 on a few dates in Jan-Feb, otherwise up to 10. 18 sightings of 1-4 outside Għadira from late Jan to late Apr, mainly at Xemxija. 1-4 from 5 different sites in May. 2 on 1 Jul and breeding confirmed on 2 Aug from Gozo. Again at Għadira from 19 Sep to 31 Dec; mostly in single figures but up to 10 on a few dates between mid-Oct and late Nov. 20 sightings of 1-5 outside Għadira, mainly at Xemxija.
1992: Up to 11 almost daily from 1 Jan to 22 May. 9 young on 3 May and 2 on 31 May and 2 pulli on 13 Jun seen at Għajnsielem. Singles on 18th and 24 Jul and 4 Aug. Up to 10 from 5 Sep to end of the year. Most non-breeding records from Għadira.

Coot *Fulica atra* Tiġieġa tal-Baħar

1990: Up to 27 wintering at Għadira in Jan-Feb, then decreasing gradually to 1 from late Feb to mid-Mar. Again from 17 Oct, reaching 10-11 by 10 Dec. At two sites outside Għadira: singles at Għajnsielem in Feb-May and at Kirkop in Oct-Nov.
1991: Daily at Għadira in Jan with up to 12 till 23 Feb, then decreasing gradually to 1 by 22 Mar and then present till 5 May. Singles irregullarly in Sep-Oct, then daily from 4 Nov reaching 8 by 13 Dec. 3 sightings outside Għadira: singles on 10 Jan and 17 Nov and 2 on 25 Dec.
1992: 8 at Għadira in Jan-Mar to 3rd, decreasing to 1 by 24 Mar. 1-2 from 29 Sep to 12 Oct, then 3 from 10 Nov to year end.

Crane *Grus grus* Grawwa

1990: Daily from 25-28 Oct with 16 at Pembroke, 20 over Mġarr (Malta), 1 at Għajn Żnuber and 9 at Qala, Gozo respectively. Then influx in Dec with 9 sightings from 2-6th; highest 56 over Għadira on 2nd, 77 again over Għadira and 48 over Dwejra (Malta) on 4th and 52 over Buġibba on 6th, otherwise 1-30. 1 over Mġarr on 21 Dec.
1991: 1 over Attard on 19 Nov; then on 4 dates in Dec with 40 over Għajn Riħana on 6th, 3 at Xewkija on 9th, 1 over Qawra on 10th and 3 at Għallis on 12th.
1992: 3 at the south of Malta on 6 Mar, 2 at Ramla Bay on 7 Nov and 1 at Għadira on 8 Nov.

Oystercatcher *Haematopus ostralegus* Gallina tal-Baħar

1990: 7 on 13th and 1 on 16 Jul, 1 on 12th and 3 on 24 Aug. All at Għallis.
1991: 2 on 17th, then on 7 dates from 31 Jul to 22 Aug (daily from 2-5 Aug); mostly 1-5 but max of 14 at Daħlet Qorrot on 4th and 15 at Għallis on 22nd, both in Aug. 1 at Għadira on 3 Dec.
1992: 7 sightings from 25 Jul to 23 Sep, max 11 off Għallis on 25 Jul.

Black-winged Stilt *Himantopus himantopus* Fras-servjent

1990: Daily at Għadira from 1 Jan to 30 Apr, in singles but 3 on 25 Mar, 12 on 8 Apr and 1-2 in Apr. 4 sightings outside Għadira: 3 at Salina on 18th and 11 at Qammieħ on 19 Mar, 4 at Salina on 3rd and 1 at Comino on 22 Apr. Singles at Xemxija on 1st and at Għadira on 22 May, then 2 at Għadira on 24 Jun.
1991: First sightings in Feb with 5 on 9-11th and 1 on 12-18th, then 7 on 16 Mar, 4 on 10 Apr and daily from 30 Apr to 16 May, when in singles, except for 2 on 3-4 May. 1 on 22 May, 9 on 26 Jun, and 1 on 2nd and 3 on 30 Jul. All at Għadira.

4 sightings elswhere: singles at Xemxija on 10th and at Wied iż-Żurrieq on 31 Mar, and 6 at Comino on 28th and 4 across Comino Channel on 30 Apr.
1992: 1-5 on 4 dates from 6-28 Mar, then 1-4 almost daily from 4 Apr to 15 May. 1 on 9 Aug and 3 on 2 Oct. Most records at Għadira.

Avocet *Recurvirostra avosetta* Xifa

1990: 1 shot at Salina during the first week of Apr.
1991: 4 sightings at Għadira in Nov, with 5 on 24th and singles on 25-26th and 29th. Two sightings at Qawra, where 1 on 24 Nov and 3 on 5 Dec.
1992: 11 at Għadira Bay on 5 Sep and 2 off Għallis on 12 Dec.

Stone Curlew *Burhinus oedicnemus* Tellerita

1990: Two records of singles in Apr; at Wied is-Sewda (shot) on 23rd and at Comino on 29th.
1991: 2 at Birżebbuġa on 1st, then singles at Comino on 16th, 23-24 Apr and 15 May; at Lunzjata on 15 Sep and at Nadur (Gozo) on 4 Nov.
1992: Singles at Għadira on 17th and at Comino on 18 Apr.

Pratincole *Glareola pratincola* Perniċjotta

1990: Singles at Luqa (shot) on 9th and at Għadira on 10 Apr.
1991: 1 at Għadira on 22 May.

Little Ringed Plover *Charadrius dubius* Monakella

1990: Daily sightings from 4 Mar to 30 Apr with most from mid-Mar to mid-Apr. Max 16 at Marsascala on 19 Mar, 15 at Għadira on 18 Mar and at Salina on 16 Apr, otherwise 1-12. Most sightings at Għadira and Salina. Singles at Għadira on 4 dates from 1-25 May and on 2 Jun. First sighting in autumn on 8 Jul, then daily (mainly at Għadira) from 13th on to 9 Sep; mostly in single figures but 10 at Salina on 23 Jul. 1-4 daily at Għadira from 19 Sep to 31 Oct and singles on 1st, 6th and 9 Nov, with one sighting elsewhere: 2 at Salina on 13 Oct.
1991: Singles on 18th and 28 Feb, then daily from 2 Mar to 5 May with a peak in mid-Mar and early Apr. Highest 40 at Salina on 1 Apr and 20 at Għadira on 16 Mar and 2 Apr, otherwise 1-15. 1 on 10 Jun. Almost daily in autumn from 2 Jul to 31 Aug; mostly 1-7 but 14 at Salina on 23 Jul; then on most days from 10 Sep to 25 Oct with 1-5 at Għadira, 15 at Għallis on 30 Sep. 1 on 4 Nov. Most sightings on both migrations at Għadira and Salina.
1992: Spring passage from 26 Feb to 16 May, with 1-15 almost daily, but 20 on 11th and 27 Mar. Autumn passage from 2 Jul to 15 Oct, with 1-10 almost daily in Jul-Aug and on 12 days in Sep-Oct, max 10 on 27 Jul and 10 Oct. Singles on 31 Oct and 1 Nov. Most at Għadira.

Ringed Plover *Charadrius hiaticula* Monakella Prima

1990: Singles at Salina on 27 Apr and on 7 dates at Għadira from 1-18 May. In autumn 2 at Salina on 16 Jul; then at Għadira with 1 on 12th and 1-2 daily from 17 Aug to 7 Sep and 1-3 from 18 Sep to 8 Oct. 5 sightings elsewhere, with 1-3 at Salina from 11-25 Aug and 1 at Għallis on 20 Oct. 1 at Għadira on 4 Dec.
1991: Daily at Għadira from 19 Apr to 22 May when in single figures of up to 8, but 10 on 2 May, 5 sightings elsewhere between 20 Apr-12 May, mostly at Salina, with max of 10 there on 22 Apr, otherwise 1-3. In autumn 1 on 7th, then almost daily from 30 Jul to 30 Sep (peak in early Sep); mainly 1-4 but 5 at Għadira on 2nd and 6 at Salina on 7 Sep. Then daily (at Għadira) in Oct from 1-27th; usually 1-3, but 6 on 12th. 18 sightings outside Għadira, mostly at Salina.
1992: 1 on 19 Mar, then 1-5 almost daily from 1 May to 6 Jun. 1 on 20 Jun, followed by singles on 17-18th and 20-21 Jul, and 20th, 23rd and 24 Aug. 1-4 from 1 Sep to 13 Oct, then 3 on 2 Nov. Most at Għadira.

Kentish Plover *Charadrius alexandrinus* Monakella Saqajha Suwed

1990: Singles at Għadira on 10 Mar, 9 Apr, 12 Aug, 22 Sep; and almost daily from 8-31 Oct. Then 2 present on 10th and daily from 14 Nov to 4 Dec. 1 on 29 Dec. One sighting outside Għadira: 2 at Għallis on 19 Jul.
1991: Singles at Għadira: on 17 Mar; 2-14 Apr; 9 Aug; 5 Sep; 8-9th; 17th and 19 Nov.
1992: 1 at Għadira on 1 Sep.

Dotterel *Charadrius morinellus* Birwina

1990: Sightings on 25th and 30 Aug, then on 8 dates from 3-30 Sep. All singles but 9 at Nadur (Malta) on 8 Sep. Most at Nadur (Malta) and Binġemma.
1991: 1 at Qammieħ on 16 Mar; then 10 sightings of 1-3 on 7 dates in Sep and singles on 6 Oct and 15 Nov. Mostly at Għadira and Buskett.
1992: 1-2 on 6 dates from 2 Sep to 22 Oct.

Golden Plover *Pluvialis apricaria* Pluviera

1990: 2 sightings in Nov, with 5 at Mosta on 17th and at Għallis on 29th. In Dec, 3 again at Għallis on 5-6th and 1 at Chadwick Lakes on 26th.
1991: 1 at Għadira on 5 Jan and 4 at Birżebbuġa on 11 Mar. In autumn, 1 on 2nd, then on 5 dates from 19 Nov to 3 Dec; mostly 1- 3 but 13 at Qawra on last date.
1992: 1-2 on 4 dates from 4 Nov to 16 Dec.

Grey Plover *Pluvialis squatarola* Pluviera Pastarda

1990: Singles at Għadira on 11 May and on 5-20 Sep, and at Għallis on 19 Nov.

1991: Singles at Għadira on 5-6 Sep and at St. Elmo Pt. on 12 Oct.
1992: 1 at Għadira on 6 May.

Lapwing *Vanellus vanellus* Venewwa

1990: In winter 1-2 daily at Għadira from 1 Jan to 3 Feb and 1 at Is-Sgħajtar on 10 Jan. Then 1 on 10th and 11 sightings on 8 dates from 27 Nov to 15 Dec; mostly 1-7 but flocks of 80 at Dwejra (Malta), 30 at Għallis and 25 at Għadira on 4 Dec. 3 on 28 Dec.
1991: 2 at Għallis on 5 Jan. 3 on 8th and 1 on 27 Oct, then influx on 24 Nov with sightings from 5 sites, max 68 at Għallis/ Qawra and 17 at Delimara. Daily in Dec from 6-31st; most at Għadira, with 9 sightings elsewhere. Mostly 1-8 but 13 at Għadira on 9th and 29th, 11 at Ta' Qali on 7th and 10 at Dingli on 9th and again at Għadira on 10th.
1992: 1-3 at Għadira from 1 Jan to 14 Mar; up to 8 on 4 days at other localities till 24 Feb. 1 on 15 Oct, 5 on 9 Nov and 50+ on 12 Dec.

Sanderling *Calidris alba* Pispisella Bajda

1990: 1-3 at Għadira from 30 Apr to 4 May.
1991: Singles at Għadira on 3-4 May and 25 Sep.
1992: 1-2 at Għadira on 3- 7 May.

Little Stint *Calidris minuta* Tertuxa

1990: Daily at Għadira from 28 Mar to 21 May with highest numbers from late Apr to mid-May; max 40 on 3 May, otherwise in single to low double figures. 11 sightings of 1-10 from 10-27 Apr outside Għadira, mostly at Salina and 30 there on 6 May. 5 on 30 May and 1 on 4-6 Jun. In autumn daily from 12 Jul to 6 Nov, mostly at Għadira and Salina. Highest 45-50 on 16-19th and 30 on 25 Aug, all at Salina; otherwise 1-15.
1991: Daily at Għadira in spring from 9 Mar to 6 Jun, with most in early Apr and from early May to early Jun; mainly over 20 with max 35 on 19 May. 14 other sightings of 1-15 at Salina from 10 Mar-25 May. Singles on 9-10th and 2 on 13 Jun, then daily from 18 Jul- 20 Oct, with highest numbers from late Jul to early Sep; mainly up to 25 but 35-40 at Salina on 29-31 Jul, then 2-3 on 26-27 Oct and 5 on 24 Nov. Most autumn sightings at Għadira and Salina.
1992: Spring passage from 29 Feb to 14 Jun, with medium double figures on most days, max 60 on 13 May. From 20 Jul to 7 Oct in autumn, max 53 on 29 Jul. Singles on 11th, 18th and 27 Oct. Most at Għadira and Salina.

Temminck's Stint *Calidris temminckii* Tertuxa Griża

1990: 1-5 at Għadira and Salina from 30 Apr - 6 May, then singles at Salina on 28 Jul and at Għadira on 5 Aug and 18 Sep.
1991: Singles at Marsalforn Valley on 27th and 30 Apr and on 4 dates at Għadira and Salina on 1-25 May 1-2 on 20-27 Jul and singles on 13th and 30 Aug, 9th, 16th and 25 Sep, all at Għadira.
1992: 1-2 on 11 dates at Għadira from 6 Apr to 6 May and 1 at Salina on last day. Singles at Għadira on 24-25 Jul, at Salina on 26 Jul and at Għadira on 30 Aug. 7 at Għadira on 7th and 1 at Xemxija on 6-8 Sep, then a single bird at Għadira from 19-27 Sep and 2 there on 3 Nov.

Curlew Sandpiper *Calidris ferruginea* Beggazzina Ħamra

1990: In spring, first sighting of 10 on 3 Apr, then decreasing to 1 by 10th. Then daily from 30 Apr to 19 May; mostly 1-11 but 15 on 12 May. 2 on 30 May and 1-2 on 2-5 Jun. All at Għadira except for 1 at Salina on 6 May. Almost daily in autumn from 21 Jul to 8 Sep; mostly 1-5 but 8+ at Salina on 4 Aug. Then 2 on 21 Sep. All sightings at Għadira and Salina.
1991: 1 on 24-29 Mar, then daily from 24 Apr - 29 May, with peak in mid-May when 20 on 15th and 17 on 16th, otherwise 1-15. All at Għadira except for 2 on 27 Apr and 1 on 25 May at Salina. Almost daily in autumn from 18-31 Jul and 15 Aug - 11 Sep; mostly 1-10 but 11 on 28 Jul and 12-13 on 5-6 Sep, all at Għadira. Then 1-4 from 17 Sep to 10 Oct.
1992: 5+ on 12th and 1 on 13 Apr, then single to low double figures, max 32, from 26 Apr to 2 Jun. 1-6 on 22 dates from 24 Jul-30 Sep. Most records from Għadira.

Dunlin *Calidris alpina* Beggazzina tat-Tiżż

1990: Only 1 sighting in spring: 1 at Salina on 17 Apr. In autumn 1-4 almost daily at Salina and Għadira from 19 Jul to 13 Sep; then daily at Għadira from 19 Sep - 26 Nov; mostly 1-5 but 6 on 20 Oct. 3 sightings elsewhere: 6 on 22nd and 2 on 23 Sep at Għallis and 5 at Salina on 13 Oct.
1991: 1 at Salina on 22 Apr; then 1 on 16th and daily sightings from 22 Jul to 23 Nov. 1-8, mostly at Għadira, with highest numbers in Aug-Sep. 17 sightings of 1-5 elsewhere, mostly in Jul-Aug. 1 on 8-11 Dec.
1992: 1-4 on 6 dates from 3rd to 15 Apr. Autumn passage from 15 Jul to 4 Dec, max 6 on 17 Aug. Most records from Għadira.

Ruff *Philomachus pugnax* Girwiel

1990: Daily at Għadira from 21 Feb to 11 May, usually 1-8 but 10- 17 on 17-21 Mar. 4 sightings of 1-2 outside Għadira in mid-Mar and Apr. Then singles on 21-26 May, 29 Jul, and 1-2 on 5 dates on 3-18 Aug. All at Għadira except for 1 at Salina on 9 Aug.
1991: Four sightings in Feb with 1 on 15th, 5 at Luqa on 16-17th and 1 on 20th. Daily from 1 Mar to 3 Jun with main migration period from early Mar to mid-Apr and in late May. Mostly 1-9 but 10 on 24 Mar and 11 on 26 May. All records at Għadira except on 8 dates when mainly sightings of 1-4 but 30 at Marsaxlokk on 3 Mar and 10 at Marsa on 24 May. In autumn 1-2 on 5 dates on 16-31 Jul and 1-3 on 11 dates from 18 Aug-22 Sep; mostly at Għadira and Salina. 1 at Għadira on 16th and 18 Oct.
1992: Spring passage from 22 Feb to 30 May, maximum 14 on 13-15 Apr. 5 sightings of 1-2 in July. Most at Għadira.

Jack Snipe *Lymnocryptes minimus* Ċinkonja

1990: Singles at Wied Baqqija on 3 Mar, at Lunzjata on 9 Nov and at Għadira on 26 Dec.
1991: Singles at Marsalforn Valley on 31 Mar, and at Lunzjata on 3rd and at Ta' Ċenċ on 10 Nov.
1992: Singles at Ramla Valley on 7 Nov and at Għadira on 16 Dec.

Snipe *Gallinago gallinago* Bekkaċċ

1990: 1-2 from 3 Jan to 28 Feb, then almost daily from 1 Mar to 20 Apr, highest 5 on 3-4 Apr and 4 on 8 Mar, otherwise 1-3. All at Għadira except for singles elswhere on 18 Mar, 3rd and 20 Apr. Singles on 5-10th and 25 May, 26 Aug and 26 Sep, then 1-2 on 11 dates in Oct, 1-3 on 18 dates in Nov and 1-3 on 5 dates in Dec. All at Għadira except for 5 sightings, mainly in Nov.
1991: 1-2 on most days at Għadira from 6 Jan to 11 May, with 4 sightings elsewhere in Mar-Apr. In autumn recorded on 11th and 18-21 Aug, 25-29 Sep, 1st and 6 Oct, 1st and 13 Nov, 9th, 13th and 30 Dec. Singles except for 2 on 13 Nov at Għadira and Ramla Valley.
1992: 1-5 almost daily from 20 Feb to 9 Apr, but ca. 20 at Marsalforn Valley on 26 Feb and 3 singles from 27 Apr to 1 May. Singles on 24-25 Aug. 1-3 from 7 Sep to 12 Nov and singles on 16th and 25 Dec. Most records from Għadira.

Great Snipe *Gallinago media* Bekkaċċ ta' Mejju

1990: Singles on 22-30 Mar at Għadira; at Xemxija on 3rd and again at Għadira on 5 May.
1992: 1 at Binġemma on 26 Apr.

Woodcock *Scolopax rusticola* Gallina

1990: Singles at Għadira on 7th and at L-Aħrax on 17 Jan. 1 on 28 Oct and 11 sightings of 1-3 on 8 dates from 3-17 Nov. 6 sightings of singles in Dec on 4th, 8-9th and 30th. Most at Wied il-Iuq and Lunzjata.
1991: 1 at Għajn Żejtuna on 1 Jan, then on 6 dates from 12 Oct to 13 Dec; mostly 1-2 but 10 reported shot at various sites in mid- Dec.
1992: 1 on 8 Feb. Singles on 5 days from 28 Oct to 12 Nov, 1 on 24 Dec.

Black-tailed Godwit *Limosa limosa* Girwiel Prim

1990: 1 at Għajn Tuffieħa on 15 Mar.
1991: Singles at Għadira on 28 Feb and 19 Apr, and 2 at Qawra on 23 Nov.
1992: Singles on 29 Feb and 30 Jul, both at Għadira.

Bar-tailed Godwit *Limosa lapponica* Girwiel Denbu bl-Istrixxi

1991: 1 at Għadira on 22 Aug.

Whimbrel *Numenius phaeopus* Gurlin Żgħir

1990: 1 at Għadira from 19 Mar to 11 Apr and at Qammieħ on 23 Mar and 4 Apr. 2 shot at Birżebbuġa on 1st and at Għallis on 12 Aug.
1991: 1 found injured at Qammieħ on 28 Mar was released after treatment at Għadira on 10 Apr and stayed till 25 May. Two sightings again at Għadira with 9 on 18 Jun and 1 on 8 Aug.
1992: 1 at Xemxija on 12 Aug.

Curlew *Numenius arquata* Gurlin

1990: On 3 dates in Mar with 42 (3 flocks) on 19th, 11 on 28th and 38 on 30th, all at Qammieħ. In autumn 1 at Binġemma on 3rd and 2 at Għallis on 6 Nov; then 1 again at Għallis on 9 Dec.
1991: Two sightings of flocks in Mar, with 20 on 23rd and 50 on 27th off Qammieħ, then on 2 dates in Apr with 13 at Comino on 7th and 1 at Għadira on 10th. In autumn 2 at Għallis on 6th and 2 at Qawra on 13 Nov.
1992: ca. 40 on 21st and 4 on 24 Mar off Qammieħ. Singles at Għadira on 18 Jul, at Għallis on 20 Aug, again at Għadira on 6th and at Qawra on 12 Nov, and at Qammieħ on 26 Dec.

Spotted Redshank *Tringa erythropus* Ċuvett

1990: Only sighted in spring at Għadira with 1-2 on 6-18 Mar, and singles on 4 Apr and 25-26 May.
1991: Singles on 1st, 16th and 20 Mar; then 2 on 7th and again singles on 9 Apr; 4 May; 7th, 15th and 24-27 Jul; 30 Sep; 23-24th and 28 Oct and on 5 Nov. All at Għadira except for 1 at Qalet Marku on 15 Jul.
1992: 1-3 daily from 3rd to 13 Apr; singles on 27 Apr, 27 Jun and on 6-7 Oct; and 1-2 from 30 Oct to 1 Nov; all records at Għadira, except for 1 at Xemxija on 1 Nov.

Redshank *Tringa totanus* Pluverott

1990: 1-2 at Għadira from 1 Jan to 26 Feb and 1 at Ramla Valley on 11 Mar. Then singles again at Għadira on 7-13 Apr and 14-23 Jun, 1-3 on most days in Jul; singles from 30 Aug to 6 Sep and on 28 Sep, 6th and 11-26 Oct, then 2 on 28th. Late singles on 6 Nov and 8 Dec. 4 sightings outside Għadira in July and Sep, highest 5 at Xemxija on 6 Sep.
1991: 1-2 at Għadira on 16-19 Mar and 1 at Comino on 28 Apr were the only sightings for spring. In autumn 1-3 on most days from 22 Jun to 25 Aug; then 6 sightings of singles on 28-29 Sep and 28-29 Oct. All autumn sightings at Għadira except for 7 records, mainly in Jul.
1992: 1-4 from 1 Mar to 10 Apr and 2 on 26 May. Then 1-7 from 17 Jun to 14 Aug. 2 on 3 Oct and 2 on 16 Nov. All, except one, at Għadira.

Marsh Sandpiper ***Tringa stagnatilis*** **Ċewċewwa Żgħira**

1990: All at Għadira: 1 on 28 Mar, 2 on 3rd and 1 on 6 Apr, then 1 on 23 Jul.
1991: Flock of 34 on 30th and 1 on 31 Mar at Għadira; then 2 sightings of singles in Sep: at Għadira on 4th and at Għallis on 30th.
1992: Singles at Għadira on 4 Apr and 21 Aug and at Qawra on 21 Sep.

Greenshank ***Tringa nebularia*** **Ċewċewwa**

1990: 2 on 16th and singles on 17th and 29 Mar; then 1-3 daily from 1 Apr to 10 May. All at Għadira except for 1 at Qammieħ on 1 Apr. Singles on 9 Jun and 20 Jul; then 1-2 on 7 dates in Aug and singles on 5-6th and 22 Sep. Most at Għadira.
1991: In spring 1 on 16 Mar, 1-5 from 2-22 Apr and 1 from 15-23 May. All at Għadira except for 1 sighting. In autumn 20 sightings on 18 dates from 27 Jun to 30 Sep (most in Sep); in singles but 2 on 16 Jul. Except for 6 sightings, mainly at Comino, all at Għadira.
1992: 1-2 from 2 Apr to 10 May. 1 on 9-10 Jun and 1-2 on 9 dates from 5 Jul to 26 Aug. Most at Għadira.

Green Sandpiper ***Tringa ochropus*** **Swejda**

1990: 1-4 on most days from 5 Mar to 9 May, but 7 at Għadira on 15 Mar and 5 at Salina on 23 Apr. Most at Għadira. In autumn almost daily from 17 Jun to 8 Oct with main migration period from mid-Jul to early Aug. Mostly 1-4 but 5 at Għadira on 2nd and at Dwejra, Gozo on 18 Aug.
1991: On most days (mainly at Għadira and Salina) from 4 Mar to 6 May, highest 5 at Salina on 18 Apr, otherwise 1-3. 1-4 on 12 dates from 21 Jun to 26 Jul and 1-5 almost daily from 3 Aug to 29 Sep. Most at Għadira. Late singles on 11 Nov and 12 Dec.
1992: Spring passage from 22 Feb to 27 Apr, with low single figures on most days, max 8 at Għadira on 29 Feb. Autumn passage from 20 Jun to 17 Sep, with low single figures almost daily, max 5 on 3 dates. Singles on 2 Oct and 11th and 15 Nov.

Wood Sandpiper ***Tringa glareola*** **Pespus tal-Baħar**

1990: Almost daily from 21 Mar to 2 Jun with peak from mid-Apr to early May; mostly 1-7 but 15 at Salina on 17th and 19 at Għadira on 30th, both in Apr. In autumn 1-8 almost daily from 4 Jul to 6 Sep, but 38+ at Salina on 10 Aug, then singles on 29 Sep, 17th and 21 Oct. Most sightings at Għadira and Salina.
1991: Singles on 18-20 Feb and 18 Mar; then 1-5 almost daily from 30 Mar to 25 May with a peak in late Apr. Most sightings at Għadira and Salina. In autumn almost daily from 5 Jul to 20 Sep; mostly 1-3 but 8 on 21st and 12 on 27 Jul at Salina, and 11 at Għadira on 11 Aug. On 3 dates at Għadira in Oct with 20 on 1st, and singles on 13th and 18th.
1992: 1 on 14 Mar, then spring passage from 30 Mar to 21 May when recorded on most days, max 14 (12 at Salina) on 30 Apr. Autumn passage from 1 Jul to 8 Sep, with almost daily records, max 7 on 21 Jul. 1 on 1 Nov.

Common Sandpiper ***Actitis hypoleucos*** **Beggazzina tar-Rokka**

1990: Singles in Mar on 9th, 18th, 24th and 31st; then almost daily in Apr and May to 29th (peak in early May). Mostly 1-6 but 10+ at Għadira on 1st and 3 May. In autumn 1-3 on 4 dates from 2- 11 Jul, then daily from 15 Jul to 12 Sep (highest numbers in Aug); mostly 1-20 but 35-40 at Għallis on 10-11 Aug. Then singles on 19th and 22 Sep, 11th and 13 Oct, 15th and 18 Nov. Most sightings at Għadira, Salina and around the coasts.
1991: Singles at Qammieħ on 9th and 16 Feb; then almost daily from 2 Apr to 5 May with max of 12 at Salina on 26 Apr and 14 at Chadwick Lakes on 1 May, otherwise 1-4. 1-2 on 6 dates from 10-28 May. In autumn 1 on 28 Jun, then almost daily from 2 Jul to 10 Sep, with most sightings from late Jul to late Aug. Highest 30 at Xemxija on 22 Aug and 19 at Għallis on 24 Jul, otherwise 1-14. Then on 15 dates from 16 Sep to 16 Oct; mostly 1-2, but 5 at Salina on 22 Sep. 1 on 8 Dec.
1992: Singles on 5 dates in Jan. Spring passage from 8 Feb to 27 May when recorded on most days, max 7 on 6 May. Singles on 11th, 12th and 29 Jun. Autumn passage from 1 Jul, then recorded to year end, with almost daily records. Medium double figures daily from 18 Jul to 8 Sep.

Turnstone ***Arenaria interpres*** **Monakella Imperjali**

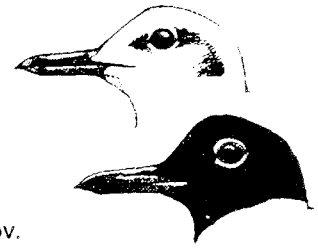
1990: Singles at Għadira on 2-10 May and at Għallis on 26 Aug and 27 Nov.
1991: 1 at Għadira on 9 May.
1992: 1 at Qbajjar on 31 Jul.

Great Skua ***Stercorarius skua*** **Ċiefa Kbira**

1990: 1 at Għallis on 15 Dec.
1991: 1 off Qammieħ on 17 Mar.

Pomarine Skua ***Stercorarius pomarinus*** **Ċiefa ta' Denbha**

1991: 1, dark phase, off Għallis on 8 Dec.



Stercorarius sp.

1990: Singles at Qammieħ on 4 Apr and at Għallis on 12 Dec.
1991: Singles off Ricasoli on 1 Apr, and off Għallis Rocks on 28 Jul, 30 Aug and 24 Nov.

Mediterranean Gull ***Larus melanocephalus*** **Gawwija Rasha Sewda**

1990: Regular sightings from Jan to Mar; single figures, but 50+ at Rinella on 17 Feb. First sightings in autumn from 4 Nov, then on most days till year end. Usually 1-10, but up to 30, mostly at Għallis, in Dec.
1991: Sightings on a few days in Jan-Mar to 17th, with max of 20 at Ricasoli on 25 Feb and 15 at Qammieħ on 9 Mar,

otherwise 1- 8. Three sightings of singles in summer: on 23 Jul, 23 Aug and 4 Sep. In autumn recorded almost daily from 27 Oct to end of year, mainly off the east coast. Mostly 1-15 but 40+ at Tas-Safra on 3 Nov and at Qawra on 8 Dec.
1992: 5 sightings of 1-2 in Jan, 3 sightings of 1-12 in Mar, and 1 from 2nd to 4 Apr at Għadira. 1-10 from 15 Oct to year end, most at Qawra.

Little Gull *Larus minutus* Gawwija Żgħira

1990: Daily at Għadira from 1 Jan to 7 Mar. Highet numbers in Jan with up to 22 on a few dates and a max of 24 on 17th; 1-3 in Feb- Mar. 26 sightings elswhere, almost all in Jan, and mostly at Għallis and Rinella. Max of 11-15 at Għallis on 13-14 Jan, otherwise 1-10.
1991: On 8 dates from 1 Jan to 26 Feb; mostly 1-4, but 10 at Ricasoli on 25 Feb. Then singles off Għallis on 9 Sep and in Grand Harbour on 16 Nov; and 1-3 on 6 dates from 8-26 Dec, but flock of 20+ at Marfa on 8 Dec.
1992: 1-6 from 26 Jan to 8 Feb. Singles on 14 Nov and from 25-27 Dec. Most records from Għadira.

Black-headed Gull *Larus ridibundus* Gawwija Rasha Kannella

1990: Wintering mainly in harbours in Jan-Mar to 24th; mostly in double figures but treble figures on a few days. Highest 400+ in Grand Harbour in mid-Jan. Singles on 1st and 4 Apr. 3 on 3rd and singles on 30 Jul and 27 Aug, then from 25 Oct, reaching low double figures by mid-Nov. Up to 60 in Dec, but 100 at Marsa on 8th.
1991: Present in harbours and around coasts in Jan-Mar with highest numbers during strong winds; mostly in double to treble figures of up to 400, but 500 at Sliema on 6 Jan and 750+ at Ricasoli on 25 Feb. Then 12 at Għadira on 15 Jul and singles on 29 Jul, 2nd and 6 Aug. In autumn from 12 Oct onwards, with most in Dec; mainly in single to double figures of up to 40, but 90 in Grand Harbour on 10 Nov and 100 at same place on 23rd.
1992: Regular sightings from 1 Jan to 1 Apr, max 450+ at Valletta Breakwater on 24 Jan. 1 on 30 Jun and 2 on 15 Jul at Għadira and 1 on 22 Jul at Salina. 1 on 15th, 2 on 16th and 1 on 24 Oct., then regularly from 1 Nov to end of year, max 200 on 13 Dec at Sliema.

Slender-billed Gull *Larus genei* Gawwija Geddumha Rqiq

1990: 1-2 on 4 dates from 10-25 Jan; then 1 on 10 Mar, 15 on 24 Apr and 3 on 6 Jul. All at Għadira. Five sightings at Għallis in autumn, with 5 on 15 Nov and 1-2 on 3-4th and 9-10 Dec.
1991: 2 on 15th and 1 on 16 Jul; 4 on 19th and 1 on 31 Aug, all at Għadira. 4 at Qawra on 2nd and singles at Għadira on 4th and again at Qawra on 30 Nov. In Dec 4 sightings at Għadira: 5 on 7th, and singles on 8th, 15th and 26th.
1992: 2 Qammieħ on 14th and 2 at Qawra on 29 Mar, 5 on 10 Aug and 1 on 5 Sep at Għallis, and 2 at Għadira on 20 Sep.

Lesser Black-backed Gull *Larus fuscus* Gawwija Daharha Iswed

1990: 2 on 20 Jan and 1 on 27 Feb in Grand Harbour, and 1 at Qammieħ on 14 Apr. Singles at Għallis on 5 dates from 11 Nov to 3 Dec and at L-Aħrax on 27 Dec.
1991: 2 on 6 Jan and 3 on 17 Mar at Qammieħ, then singles at Sliema on 30 Mar and at Iċ-Ċumnija on 11 Apr. 9 sightings of 1-3 on 6 dates from 23 Nov to 21 Dec, mostly off the east coast.
1992: 8 sightings of 1-2 in Mar, and singles on 23 Apr. Then 1 on 23 Sep; 6 sightings of 1-4 in Oct: singles on 14 Nov and 13 Dec and 2 on 29 Dec. Most sightings from Qawra.

Yellow-legged Gull *Larus cachinnans* Gawwija Prima

1990: Present all the year mainly around the coasts, with highest numbers in Jan-Mar and Oct-Dec, max of 50 in mid-Mar and 40+ in mid-Nov. Fewer numbers in Jul-Aug. Bred at usual colonies.
1991: Present along coasts all year round with highest numbers in Jan-Jun and Oct-Dec. Mostly in single to double figures of up to 20, but 150+ on 21 Dec off Lapsi, near Filfla (colony).
1992: Regular records all year with peak from Mar to May and lowest in Jul to Sep. Up to 40 daily in peak period. Bred as usual.

Herring Gull *Larus argentatus* Gawwija Prima Saqajha Roża

1990: 1 at Qammieħ on 29 Dec.

Gull-billed Tern *Gelochelidon nilotica* Ċirlewwa Geddumha Oħxon

1990: 2 at St. Elmo Pt. on 29 Sep; then 2 on 11th and 1 on 30 Nov and 3 on 7 Dec, all at Għallis.
1991: 2 at Għadira on 15 Mar. 3 at Għallis on 5th, singles off south-east coast on 18th and at Pembroke on 22 Aug, then again singles at Pembroke on 27 Oct and at Dahlet Qorrot on 8 Nov.
1992: 2 on 26 May, 2 on 8th and 1 on 23 Jun, 2 on 7th and singles on 11 Jul, 27 Sep and 14 Dec. Most at Għadira.

Caspian Tern *Sterna caspia* Ċirlewwa Prima

1990: 4 at Għallis and 2 at St. Elmo Pt. on 22 Sep, then again 2 at Għallis on 3 Nov.
1991: 2 at Għadira on 10 Sep.
1992: 1 at Delimara on 20 Mar, 1 on 14 Aug and 2 on 5 Sep at Għallis, 11 at Qawra on 9th and 2 at Għadira and 1 at Salina on 24 Oct.

Sandwich Tern *Sterna sandvicensis* Ċirlewwa tax-Xitwa

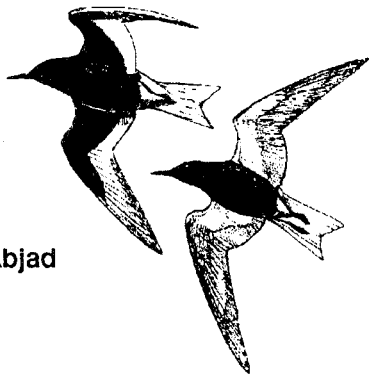
1990: 7 on 22nd and 3 on 23 Mar at Qammieħ, then 1 at Għadira on 24 Jun and 2 at Għallis on 23 Aug and 29 Sep. 1-3 on 4 dates from 2-11 Nov and 1-2 on 5 dates from 1-11 Dec, all at Għallis; then 1 at L-Aħrax Pt. on 27 Dec.
1991: On 4 dates from 29 Aug to 22 Sep with 6 at Għadira on 2 Sep highest; otherwise 1-2. Then 18 sightings on 15 dates

from 26 Oct to 29 Dec (most in Nov); mostly 1-4 but 12 on 26 Oct at Għallis, 8 at Għadira on 2nd and 29+ at Pembroke and 25+ at Tas-Safra on 3 Nov.
1992: 4 singles from 14th to 22 Aug and 1-5 on 6 dates from 6 Sep to 12 Oct. All at Għallis/Qawra.

Common Tern *Sterna hirundo* Ċirlewwa tal-Baħar
1991: Singles at Ramla Valley on 31 May and at Għadira on 9 Oct.
1992: 1 at Għadira on 21 May.

Little Tern *Sterna albifrons* Ċirlewwa Żgħira
1990: Singles at Għadira on 15 Apr, 12-13 May and 5-6 Jun.
1991: Singles at Għadira on 9 May, at Għallis on 2 Sep and again at Għadira on 5-7 Oct.

Whiskered Tern *Chlidonias hybridus* Ċirlewwa bil-Mustaċċi
1990: 3 at Għadira on 20 Jun.
1991: 2 at Għadira on 16 Jun.
1992: 2 at Għadira on 2 May.



Black Tern *Chlidonias niger* Ċirlewwa Sewda
1990: 6 at Għallis on 23 Aug, 1 at Għadira on 5th and 4 at Għallis on 12 Sep.
1992: 1-8 on 4 dates from 20 Aug to 5 Sep. All sightings from Għadira and Għallis.

White-winged Black Tern *Chlidonias leucopterus* Ċirlewwa tal-Ġewnaħ Abjad
1990: All sightings at Għadira: 1 on 12th and 4 on 30 Apr and 2 on 3 May.
1992: 1 at Għadira on 3 May.

Unidentified "Marsh" Terns *Chlidonias* sp.
1990: 3 sightings at Għallis, with 50+ on 17th and 10+ on 23 Aug, and 45+ on 12 Sep.
1991: Flock of 60 off Għallis on 29 Aug and 1 over Buskett on 11 Sep.
1992: 2 on 16 Aug and 3 sightings of 2-25 from 2-5 Sep.

Rock Dove *Columba livia* Tudun tal-Ġebel
1992: 3 on 27 Jul at Blue Grotto and 1 on 2 Aug at Ramla Valley.

Woodpigeon *Columba palumbus* Tudun
1992: 1 at Buskett on 6 Sep.

Collared Dove: *Streptopelia decaocto* Gamiema tal-Kullar
1990: 1 at Lunzjata on 5 Nov.

Turtle Dove *Streptopelia turtur* Gamiema
1990: In spring 10 sightings of 1-3 on 6 dates from 5-15 Apr, then daily from 20 Apr to 4 Jun. Mostly in single to double figures of up to 25, but 30-50 on 6 dates; 100+ at Gozo on 22nd and an influx on 30 Apr with 1000+, mostly at Buskett and Għajn Tuffieħa. 1-3 on a few days in Jun-Aug when sighted at 9 different sites. In autumn almost daily from 25 Aug to 14 Oct (peak in early Sep); mostly single figures, but c.40 at Buskett on 4 Sep.
1991: 1-3 on 7 dates from 21 Mar to 3 Apr; then daily from 10 Apr to 4 Jun (peak in Apr). Mainly 1-20 but 50 at Xagħra (Gozo) on 15th, 60 at Għadira on 16th and 50+ at Comino on 21 Apr. Regular sightings of 1-2 (mostly at Buskett) from mid-Jun to mid-Aug. Then almost daily in autumn from 29 Aug to 10 Oct (peak in early to mid-Sep); single to double figures of up to 20, but 25-30 at Buskett on 4-5 Sep. Singles on 4 dates from 14 Oct to 7 Nov.
1992: Singles on 25th and 30th and 2 on 31 Mar, then passage from 6 Apr to 3 Jun, max 61 on 9 Apr. 1-3 almost daily in various localities throughout Jun to Aug. 1-16 daily from 3rd to 29 Sep and 1 on 17 Oct.

Laughing Dove *Streptopelia senegalensis* Gamiema ta' l-Ilwien
1992: 1 shot at Delimara on 16 Oct.

Great Spotted Cuckoo *Clamator glandarius* Sultan il-Gamiem tat-Toppu
1992: 1 found dead at Wied il-Għasel on 14 Nov.

Cuckoo *Cuculus canorus* Daqquqa Kaħla
1990: 14 sightings of 1-3 on 12 dates from 30 Mar to 20 May (most in Apr) and 1 on 3 Jun. In autumn, singles at Wied il-Luq on 7- 8th and 15th and at Binġemma on 22 Jul, then again at Wied il-Luq on 5 Aug.
1991: In spring 12 sightings of 1-3 on 10 dates from 1-26 Apr (mostly at Comino) and singles there in May on 4th and 14th. Then singles on 15th and 21 Jul; 4th and 25 Aug; 4th, 15th and 18-19 Sep. Last 5 sightings at Buskett.
1992: Singles on 15th and 31 Mar, then 1-5 on 12 dates from 7 Apr to 12 May and 1 on 30 May. Singles on 4th and 9 Aug and on 22 Oct.

Barn Owl *Tyto alba* Barbaġann
1990: 1 at Binġemma on 11 Aug.
1991: 1 at Xewkija on 25 Nov.

Scops Owl *Otus scops* Kokka

1990: 1 on 28 Mar. In autumn singles on 29-30 Sep, and 9 sightings of 1-3 on 7 dates from 6 Oct to 6 Nov, mostly at Binġemma.
1991: Singles at Buskett on 12 Jan and at Lunzjata on 9 Feb; then on 9 dates from 23 Mar to 4 May; mostly in singles but 2 at Binġemma on 9th and at Comino on 28 Apr. In autumn 11 sightings of 1-3 from 27 Sep to 24 Oct, mostly at Binġemma.
1992: Singles on 7th and 9 Mar, and on 16th and 20 Apr were the only spring records. 1-2 on 8 dates from 20 Sep to 28 Oct and 1 on 29 Dec.

Long-eared Owl *Asio otus* Qattus

1990: 1 at Buskett on 28th and 1 shot at Binġemma in late Oct.

Short-eared Owl *Asio flammeus* Kokka tax-Xagħri

1990: 7 sightings in Mar from 13-25th; mainly 1-2 but 5 at Qammieħ and 3 at Għajn Tuffieħa on 23rd; then four sightings of singles in Apr: on 3-4th and from 2 sites on 15th. In autumn 1 on 29 Sep and 2 on 25 Oct; then singles on 10th, 12th and 17 Nov.
1991: Singles at Sarraflu on 19 Mar, at Ramla Valley on 5th and at Qalet Marku on 19 Oct; at Is-Sanap (Gozo), Tas-Safra and Nadur (Gozo) on 2-4th respectivaly and at Qawra on 10 Nov.
1992: 4 records of 1-2 from 14th to 22 Mar, 1 on 21 Apr. 2 on 20 Sep and singles on 2nd and 14 Nov and 22 Dec. Most at Qammieħ.

Nightjar *Caprimulgus europaeus* Buqrajq

1990: 5 sightings on 3 dates in Apr; singles, but 2 on 22nd and 3 on 30th, both at Binġemma; then singles on 12-13 May. In autumn singles on 2nd and 28-30 Sep; and 6 sightings from 10-31 Oct. Most autumn sightings at Buskett.
1991: On 1st and 15th, then almost daily from 21 Apr to 2 May; mostly 1-2 but 5 at Comino on 27 Apr. Only 4 sightings outside Comino. In autumn 1 on 7th, and 8 sightings of 1-2 from 21 Sep to 11 Oct. Except for 2 sightings, all at Binġemma.
1992: 1-3 on 13 dates from 10 Apr to 15 May, then 1 on 31 May. In autumn 1-4 on 13 dates from 8 Sep to 15 Oct.

Swift *Apus apus* Rundun

1990: 2 on 10th, then almost daily from 27 Mar to 26 Sep with highest numbers in May and Aug. Mostly in double figures but treble figures on 10 dates with 500+ at Marsalforn on 11 May and 300+ at Dwejra/Nadur (Malta) on 20 Aug highest counts, otherwise up to 250. 1-8 on 4 dates from 5-9 Oct.
1991: Almost daily from 16 Mar to 30 Aug, mostly in double to low treble figures of up to 200, but higher numbers on 10 dates, with max of 1500 at Marsalforn on 25th, 800 at Binġemma and 500 at Ġnejna on 26 May, and 500+ at Dwejra (Malta) on 25-26 Aug. 19 on 6th, then 1-10 on 12 dates from 8 Sep to 19 Oct. Late single at Dingli on 25 Nov.
1992: Almost daily records from 15 Mar to 7 Oct, max 800 at Dwejra on 31 May. 3 on 21 Oct and 2 on 3 Nov.

Pallid Swift *Apus pallidus* Rundun Kannelli

1991: 1 at Comino on 23 Apr and 1 at Għallis on 1 Jul.
1992: Singles on 4th at Salina and on 14 Apr at Ċirkewwa, and 2 on 24 May at Mellieħa. Then singles on 4 Jul at Binġemma, and on 7th and 11 Sep at Buskett.

Alpine Swift *Apus melba* Rundun Żaqqu Bajda

1990: 7 sightings of 1-2 on 5 dates from 7-26 Apr; singles on 27-28 Jun; 1 on 7th and 2 on 10 Jul. Singles at Dwejra (Malta) on 21st and 25 Aug and on 10 dates from 14 Sep to 27 Oct; mostly 1-2 but 4 at Buskett on 19 Sep and 27 Oct. All autumn sightings at Buskett and Nadur (Malta).
1991: 11 sightings of 1-3 from 27 Mar to 25 Apr and singles on 25 May and 4 Jun. Then 1 on 4th and 2 on 14th Aug, 2 on 20 Sep and 3 at Buskett and 1 at Nadur (Malta) on 4 Oct.
1992: 1 on 13 Mar, 1-2 on 7 dates from 8 Apr to 10 May, 1 on 14th and 2 on 15 Jul, all from various localites in Malta and Gozo, and 1-8 on 8 dates from 6th to 29 Sep when most from Buskett.

Kingfisher *Alcedo atthis* Għasfur ta' San Martin

1990: At Għadira from 1 Jan to 3 Mar. Then again there on 19 Jul and almost daily from 3 Aug to year end (highest numbers from mid-Sep to late Oct). Usually 1-3 but 4 on 19 Sep and on 5 Oct. 19 sightings outside Għadira (mostly in Sep at Xemxija); singles but 2 on 20 Aug.
1991: 1-2 daily at Għadira from 1 Jan to 20 Mar and 1 at Qammieħ on 1 Mar. In autumn, 16 sightings of singles from 5 different sites from 3-27 Aug, then daily at Għadira from 2 Sep to end of year. Mostly 1-2 but 3 in early Sep and from mid-Oct to mid-Nov, and up to 4 on 16 Oct. 12 sightings elsewhere, mostly at Xemxija from early Sep to mid-Nov; singles but 2 at Ramla Valley on 29 Sep.
1992: 1-2 from 1 Jan to 30 Mar at Għadira, and 1 at Qammieħ on 20 Mar. Singles on 21st, 22nd and 28 Jul, then 1-4 almost daily from 9 Aug to 31 Dec, most at Għadira.

Bee-eater *Merops apiaster* Qerd in-Naħal

1990: In Apr, 1 on 13th and 4 sightings of 10-12 on 21-22nd, then 15 on 10th and 1 on 16 May and 4 sightings in Jun with 4 at 2 sites on 10th, 1 on 27th and 3 on 28th. In autumn 9 sightings (almost all at Buskett) from 25 Aug to 7 Oct; mainly 1-10 but 12 at Buskett on 22 Sep.
1991: 2 on 26 Apr, then on 8 dates from 12 May to 22 Jun; mostly 1-2 but 15 at Dingli Cliffs on last date. In autumn only 3 sightings, all at Buskett in Sep, with 6 on 7th, 16 on 16th and 14 on 18th.

1992: 1 on 17th and 4 on 25 Apr, 9 sightings of 1-7 from 7 May to 3 Jun and 1 on 19 Jun. In autumn recorded on 7 dates from 11th to 25 Sep, max 80 (45+ at Binġemma) on 19 Sep.

Roller *Coracias garrulus* Farruġ

1990: Singles at Marsalforn Valley on 23rd and at Bidnija (shot) on 27 Apr.
1991: Singles at Qawra on 21 Apr and at Buskett on 10 Sep.
1992: Singles at Comino on 10th and at Wied l-Isperanza on 16 May.

Hoopoe *Upupa epops* Daqquqa tat-Toppu

1990: In spring almost daily from 10 Mar to 15 Apr (most sightings at Qammieħ); usually 1-5 but 20 at Qammieħ and 15 at Għajn Tuffieħa on 23 Mar, and 10+ at Għajn Tuffieħa on 3rd and at Qammieħ on 14 Apr. Then singles on 20th and 29 Apr and 2 on 1 May. In autumn only recorded in Aug, with 13 sightings of singles from 4-30th.
1991: Singles on 6 Jan and 26 Feb; then 1-3 from 3 Mar to 12 May with main migration period from late Mar to mid-Apr. Most sightings at Comino and Għadira. Singles on 1-2 Jun at Buskett. In autumn 10 sightings of 1-2 on 8 dates from 13 Aug to 8 Sep and singles on 21 Sep and 30 Oct.
1992: Spring passage from 10 Mar to 19 Apr when recorded almost daily in low single to low double figures, max 13 on 20 Mar. Singles on 28 Apr, 7th and 30 May and 6-7 Jun. In autumn 9 sightings of 1-2 from 19 Aug to 26 Sep.

Wryneck *Jynx torquilla* Bulebbiet

1990: Singles regularly at 5 sites in Jan-24 Feb, then 19 sightings of 1-2 on 16 dates from 9 Mar to 10 May. 1 on 12 Aug, then almost daily sightings from 16 Sep to end of year with a peak between late Sep and mid-Nov. Usually 1-3 but 4 at Buskett on 7 Oct.
1991: 1-2 wintering at 9 sites in Jan and on to mid-Mar, then on most days on spring migration from 17 Mar to 25 Apr, when mainly sightings of 1-2 but 3 at Comino on 7th and 17 Apr. Singles on 1st and 17-18 May. In autumn 1-2 almost daily from 8 Sep to 30 Nov (with a peak in Oct). Then a few singles wintering in Dec.
1992: 1 at Binġemma on 17 Jan and 3 singles on 3 dates at Għadira in Feb. Spring passage from 1 Mar to 24 Apr with 1-2 on 18 dates (no marked peak). Then singles at Għadira on 2nd and at Comino on 16 May. In autumn from 8 Sep, with 1-5 almost daily to 24 Dec.

Short-toed Lark *Calandrella brachydactyla* Bilbla

1990: A few singles from 18-29 Mar; then present (in suitable areas) from Apr-Sep. Migrants most evident in Apr and Aug-Sep when in high double figures, but a 'large passage' over the Maltese Islands on 3rd and up to 100 at 2 sites on 23 Apr. Late singles on 3rd and 5 Oct.
1991: First sightings on 16 Mar, then present in various suitable breeding sites till late Sep. Migrants most evident in Apr-May when in double figures of up to 50, and in Aug-Sep with double figures in Malta, but higher numbers in Gozo, with max of 1000- 2000 roosting at Wardija/Sarraflu in late Aug. Late sighting of 15 on 4 Oct.
1992: 1 at Qammieħ on 14 Mar and 10 over Mdina on 27 Mar, then daily from 1 Apr to 7 Oct; usually medium double to low treble figures, but 1000+ at Sarraflu on 7 Aug.

Woodlark *Lullula arborea* Ċuqlajta

1991: Singles at Għadira on 29-30 Oct.
1992: 4 at Għadira on 29 Oct.

Skylark *Alauda arvensis* Alwetta

1990: 1-3 recorded wintering from a few sites in Jan-Feb but 10 at Ta' Pinu on 3 Feb; then 9 sightings of 1-6 in Mar till 24th. In autumn singles on 29 Sep and 1 Oct, then almost daily from 7 Oct to 27 Nov with highest numbers between mid-Oct and early Nov; max of 125 at Mġarr (Malta) on 15 Oct and 310 at Għallis on 6 Nov, otherwise in single to double figures of up to 60. 1-2 on a few dates till end of year.
1991: 1-5 wintering at various sites (mostly in Gozo) in Jan-Feb; then migration evident in Mar with max of 100 at Qammieħ/Ċumnija on 18th and 30 at Sarraflu on 19th, otherwise 1-15. 1-2 on 3 dates in Apr to 13th and singles at Rabat on 24 Aug and 4 Sep. In autumn daily from 4 Oct to 21 Nov; mostly in single to low double figures of up to 25 but 5 sightings of 35-50 in early Nov. 1-10 on most days till end of year.
1992: 1-6 on a few dates in Jan-Feb to 16th, then almost daily from 21 Feb to 24 Mar, max 67+ (total at 6 localities) on 8 Mar. Regular from 3 Oct to year end with peak from 30 Oct to 24 Nov, with max of 200+ (total at 3 localities) on 3 Nov.

Sand Martin *Riparia riparia* Ħawwiefa tax-Xtut

1990: 10 on 23rd and 1 on 30 Mar; 6 on 3rd and then daily sightings from 6 Apr to 30 May. Mostly in double figures, with higher numbers between mid-Apr and mid-May when mainly in treble figures of up to 500 but 1000+ at Marsalforn on 11 May. 7 sightings of 1-2 from 1-26 Jun and singles on 16 Jul and 28 Aug. Then almost daily from 14 Sep to 21 Oct; mostly 1-30 but 50 on 28 Sep and 100 on 2-3 Oct at Lunzjata. Singles on 5 dates from 28 Oct to 25 Nov.
1991: Daily from 10 Mar to 1 Jun, with treble figures of up to 300 on most days between 27 Apr and 1 Jun, but 400 at Marsalforn on 27 Apr and 700 at Ramla Valley on 20 May. Then singles on 5th and 25 Jun and 28 Aug. In autumn almost daily from 5 Sep to 25 Oct when in single to double figures of up to 60, but 500 at Ramla Valley on 5 Oct. 10 on 1 Nov.
1992: Spring passage from 7 Mar to 30 May with peak from 12 Apr to 8 May, when up to medium treble figures almost daily. Singles on 23 Jul and 3 Sep at Għadira. Autumn passage from 11 Sep to 3 Nov, with low to medium double figures on most days, but 200 at Ramla Valley on 26 Sep.

Crag Martin *Ptyonoprogne rupestris* Ħawwiefa tal-Blat

1992: Singles at Lunzjata on 12th, 24th, 28th and 31 Dec and 5 at Xlendi on 25 Dec.

Swallow *Hirundo rustica* Ħuttafa

1990: 1-20 on most days from 10-31 Mar; then daily from 3 Apr to 14 May when mostly in treble figures of up to 500 but max of 1500 at Marsalforn on 11 May. 1-10 regularly till 31 May, and 1-4 till 22 Jun. Singles on 24 Jul and 16 Aug. In autumn daily from 28 Aug to 10 Nov with highest numbers between late Sep and late Oct when in treble figures regularly; max of 500 at Lunzjata on 6th, 8th and 24 Oct. Late singles on 17 Nov, 2nd and 8 Dec.
1991: Singles at 3 sites on 2nd, then daily from 9 Mar to 6 Jun. Mostly in double to low treble figures, with max of 300 at Lunzjata on 16 Mar. Then 1-2 on most days from 12 Jun to 2 Jul; 3 on 2-3rd and singles on 10th and 19 Aug. 2 on 1st, then daily from 5 Sep to 10 Nov with treble figures of up to 500 regularly between mid-Sep and mid-Oct but 1000+ on 21 Sep, 2000+ on 5 Oct and 3500 on 7 Oct were estimated present at Ramla Valley. 3 on 16th and 19 Nov were last sightings.
1992: 1 at Marsalforn on 26 Feb, then from 6 Mar-28 Jun with peak from 7 Apr-26 May when up to medium treble figures recorded daily. Singles on 6th and 8 Jul at Għadira, 6 records of 1-3 in Aug, then autumn passage from 2 Sep to 4 Nov with peak from 15 Sep to 17 Oct, when up to 1500 recorded daily at various localities, 4 sightings of 1 to 10 from 10th to 28 Nov and singles on 9th, 12th, 13th and 31 Dec.

Red-rumped Swallow *Hirundo daurica* Reġina tal-Ħuttaf

1990: 16 sightings of 1-2 from 8-27 Apr, but up to 10 at Ramla Valley on 11-13th. Then 3 at Marsalforn on 11th and 4 at Ramla Valley on 13 May. One sighting in autumn: 1 at Buskett on 13 Sep.
1991: Singles in Mar at Marsalforn on 15th, at Qammieħ on 26th and at Wied Babu on 30th; then 3 at Marsalforn on 23-24th and 1 at Comino on 26 Apr. 1 on 11 May and 2 on 1 Jun, all at Ramla Valley; and two sightings in Oct with 2 at Xagħra on 4th and at Ramla Valley on 7th.
1992: 1 at Marsalforn on 17 Mar and 20 at Ta' l-Għattuq on 1 Apr, then 12 sightings of 1-5 on 10 dates from 2nd to 19 Apr. In autumn 7 sightings of 1-3 from 4 localities from 18 Sep to 3 Oct.

House Martin *Delichon urbica* Ħawwiefa

1990: 2 on 12th and 2 singles on 24 Feb followed by 1-6 on most days from 7-30 Mar; then daily from 6 Apr to 20 May with treble figures of up to 300 on most days but max of 600 at Xemxija on 22 Apr and 500 at Marsalforn on 11 May. 5 sightings of 1-15 from 25 May to 7 Jun. In autumn singles on 1st and 3rd, then from 13 Sep to 31 Oct (daily from 21 Sep to 9 Oct and 25-31 Oct). Highest 200 at Buskett on 25-26 Sep and 8 Oct and 100 at Nadur, Malta on 6th and 9 Oct, otherwise up to 50; then daily sightings of 1-10 from 5-25 Nov.
1991: Singles on 8th, 14th, and 23 Feb; then from 2 Mar to 21 Jun with a peak in May. Treble figures on most days with max of 600 at Lunzjata on 18 Mar, but 1400 at same place on 18 May; fewer numbers from late May but 200 at Ramla Valley on 1 Jun. In autumn almost daily from 5 Sep to 27 Oct when mostly in double figures of up to 60 but 80+ at Nadur (Malta) on 20 Sep. 2 on 9th, 10 on 16th and 1 on 17 Nov were last sightings.
1992: 1 at Lunzjata on 8th and 1-8 on 7 dates from 16th to 29 Feb. Then from 1 Mar to 10 Jun with peak from 10 Apr to 26 May when up to medium treble figures almost daily. 3 on 16 Jun. Autumn passage from 28 Aug to 3 Nov; usually medium to high double figures, max 500+ at Għadira on 6 Oct. 2 at Lunzjata on 12 Dec.

Tawny Pipit *Anthus campestris* Bilblun

1990: 9 sightings of 1-2 from 4-29 Apr but 4 at Sarraflu on 24th; then 1 on 13 May. In autumn 1-5 almost daily from 5 Sep to 3 Oct.
1991: 20 sightings of 1-2 from 17 Mar to 2 May but 4 at Gozo on 2 Apr and on Comino on 1 May; then 1 on 13 May. Autumn migration from 2 Sep to 11 Oct with 27 sightings of 1-3 on 21 dates but 4 at Qala Pt. on 20 Sep.
1992: 1 on 28 Mar, then 12 records of 1-12 from 4-25 Apr and singles on 17th and 31 May. Autumn passage from 6 Sep to 10 Oct when recorded in single figures on 16 days. Max 10+ Għadira on last day.

Tree Pipit *Anthus trivialis* Diżż

1990: Singles on 11th and 17th, then daily sightings from 26 Mar to 21 May with most between early Apr and mid-May; in single to medium double figures but 150 at Qammieħ on 8th and 2000+ at Għadira on 24 Apr. Singles on 3 Jun and 14 Jul. In autumn almost daily from 24 Aug to 23 Oct with main migration period between mid-Sep and early Oct; double figures of up to 30 on a few dates but 100 at Nadur (Malta) on 28 Sep. Singles on 5 dates from 3-20 Nov.
1991: 4 sightings of 1-2 from 9-13th, then daily from 16 Mar to 7 May, with higher numbers between late Mar and mid-Apr when mostly in medium double figures but 150 at Dwejra (Gozo) on 30 Mar, 200 (2 sites) on 1-2nd and 100 (2 sites) on 16 Apr. 1-2 on 5 dates from 12-22 May. In autumn 1 on 18th, then daily from 25 Aug to 5 Nov with main migration period between mid-Sep and early Oct when mostly up to 10, but 20 at Nadur (Malta) on 26 Sep. Late singles on 21st and 30 Nov.
1992: Single figures on 8 days from 2nd to 25 Mar, then almost daily from 30 Mar to 17 May, max 77+ on 18 Apr from 5 localities. In autumn single to low double figures almost daily from 26 Aug to 8 Nov, max 29+ on 21 Sep.

Meadow Pipit *Anthus pratensis* Pespus

1990: Wintering mainly in low double figures in Jan-Feb but 35-50 counted on a few days; then return passage evident from mid-Feb with max of 60 at Binġemma on 18th and 22 Feb. Numbers decreased after mid-Mar with a few till 7 Apr. Autumn migration from 11 Oct with a peak from late Oct to mid-Nov when in double figures of up to 80 but 100 at Binġemma on 25 Oct and at Għallis on 6 Nov. Up to 20 at most sites from late Nov to end of year.
1991: Wintering numbers mainly up to 20 at most sites in Jan-Feb but 40 at Wied il-Għasri on 6 Feb; then an increase in numbers from late Feb to late Mar with 25-30 almost daily, reaching a max of 50 on 12 Mar. A few till 16 Apr. In autumn

from 11 Oct onwards with highest numbers between late Oct and mid-Dec when 25-30 almost daily, but 100 at Għajn Tuffieħa on 26th and 50 at Baħrija on 27 Oct, and in Gozo on 10 Dec.
1992: Daily sightings from 1 Jan to 11 Apr, max 210+ from 6 localities on 8 Mar. Daily from 10 Oct to year end, max 209+ from 3 localities on 10 Nov.

Red-throated Pipit *Anthus cervinus* Diżż Aħmar

1990: 1 on 2 Feb; then 12 sightings on 9 dates from 7-29 Apr and 1 on 13 May; mostly 1-2 but 5 at Għarb and 4 at Għajnsielem on 23rd. Singles on 27th and 29 Sep; then 14 sightings of 1-3 on 11 dates from 2-25 Oct. Most sightings at Għadira.
1991: 1 on 3 Feb; then 1-3 almost daily from 28 Mar to 11 Apr with max of 5 at Salina on 8th; and 12 sightings on 8 dates from 20-29 Aor; in singles but 4-5 at Munxar on 27-29th. 1 on 14 May. In autumn 5 sightings of 1-2 from 8-19 Oct, then 1 on 1st and 2 on 2 Nov.
1992: In spring 11 sightings of 1-3 from 9 Apr to 10 May. In autumn 9 sightings of 1-3 from 5 Oct to 7 Nov.

Rock Pipit *Anthus petrosus* Diżż tal-Blat

1990: Singles at Għadira on 12-16th and 24 Oct.

Water Pipit *Anthus spinoletta* Diżż ta'l-Ilma

1990: Singles at Għadira on 8 Jan; 29-30 Oct; 9th, 11th and 16-24 Nov.
1991: Singles at Għadira on 4th and 25 Jan, then 2 at Wied il-Mielaħ on 19 Feb, 1 again at Għadira on 17th and 4 at Għallis on 24 Nov.
1992: 1 at Binġemma on 17 Jan. Then 1 at Għadira on 6-7th, 4 at Għallis on 21st and 1 at Manoel Island on 30 Nov.

Yellow Wagtail *Motacilla flava* Isfar

1990: Up to 10 on most days from 10-31 Mar, then daily from 2 Apr to 21 May with most in Apr. Mainly in double figures, max 60, but 100 at Għadira on 8th, at Salina on 23rd and at Binġemma on 30 Apr. 1-2 sighted regularly at Salina and Għadira from late May to early Aug but 6 on 4th and 5 on 9 Jul at Salina, indicating breeding. Daily on autumn migration from early Aug to 10 Oct (most in Sep); mostly in double figures with treble figures on a few dates, max 300 at Lunzjata on 5 Oct. 1-5 on 9 dates from 12- 29 Oct and 1 on 23 Nov.
1991: 1 on 4th, then daily from 10 Mar to 24 May with most in Apr. Mostly in double figures of up to 40 but 60-100 at Għadira on 2-4th and 300 at Munxar on 27-28 Apr. Singles on 29th and 31 May and 1-2 on 3 dates from 7-21 Jul. In autumn 1-2 on 4 dates from 5-15th, then daily from 17 Aug to 28 Oct with main migration period from early Sep to early Oct. Treble figures on 5 dates with max of 200 at Nadur (Malta) on 24th and at Wied il-Luq on 28 Sep, otherwise in double figures. Last sightings of singles on 1st, 13th and 17 Nov.
1992: Spring passage from 6 Mar to 21 May with medium double to low treble figures recorded daily, max 224+ from 3 sites on 18 Apr. Singles on 28 May and 10 Jun. Autumn passage from 9 Aug to 7 Nov, with medium double to low treble figures daily, max 510+ at Girgenti on 11 Oct.

Grey Wagtail *Motacilla cinerea* Zakak tad-Dell

1990: 1-2 almost daily from 1 Jan to 11 Mar but up to 3 on 28 Jan and 26-27 Feb. Most sightings at Għadira and Lunzjata. In autumn singles on 4 dates from 10-21st, then daily from 28 Sep with a peak from early Oct to mid-Nov; in single figures, with max of 6 at Ħamrun on 9 Nov. 1-3 from a few sites till end of year.
1991: 1-3 wintering at various sites in Jan to 18 Mar, but up to 4 at Lunzjata on 9 Feb. Sighted at 12 different areas but mostly at Għadira. In autumn singles on 26th and 29 Sep, then daily from 2 Oct with most from mid-Oct to early Nov, low single figures, with max of 4 at Xemxija on 3 Nov, but 11 at Lunzjata on 13 Oct. 1-2 on a few days in Dec.
1992: 1-3 recorded on 19 dates in Jan-Mar to 22nd. In autumn almost daily from 15 Sep to 31 Dec, max 28 from 4 localities on 7 Oct.

White Wagtail *Motacilla alba* Zakak Abjad

1990: Single to medium double figures at various sites in Jan-Mar but 3600 at Valletta on 27 Jan and 1000 at Victoria on 16 Feb, both at roosting sites. Singles on 3rd, 12th and 21 Apr, 6 May and 16 Jun; then 1-2 at Salina in Jul-Aug. In autumn 1 on 30 Sep, then daily from 4 Oct with a peak from mid-Oct to mid-Nov; usually in double figures but treble figures of up to 300 on a few dates and 1000+ on 24 Oct at Lunzjata. Smaller numbers in Dec.
1991: In single to low double figures (max 30) in Jan-Feb with a slight increase in sightings in Mar due to migrants. In single figures from late Mar (but 10 at Għadira on 1 Apr) with last sightings on 26 Apr. In autumn 1 on 4 Oct, then daily from 11 Oct to end of year, with most from mid-Oct to late Nov; mostly in double figures, max 50, but 100 at Marsa on 1st and at Lunzjata on 10 Nov. In Dec 1000 at Għajnsielem roost on 27th, otherwise up to 15.
1992: Daily from 1 Jan to 27 Mar, max 2002 at Valletta roost on 1 Feb and 1500+ at Għajnsielem roost on 15 Feb. Singles on 28 Jun, 21st and 27 Sep, then regular from 1 Oct to 31 Dec, max 440+ from 3 localities on 2 Nov.

Wren *Troglodytes troglodytes* Bumistur

1990: 1 at Għadira on 8 Mar.
1991: 1 at Wied Għolliqa on 25 Nov.
1992: Singles at Ħas-Saptan on 9th and at Buskett on 22nd, 27th and 28 Nov and at Għajn Żejtuna on 5th and 7 Dec.

Dunnock *Prunella modularis* Żiemel

1990: Up to 10 on a few dates in Jan-Mar to 11th, but 15+ at Wied il-Luq on 28 Jan; then 5 sightings of singles on 22-27 Mar. Very late individual on 27 May. In autumn 1 on 7th, then daily from 18 Oct with peak from late Oct to mid-Nov when 20-35 almost daily but max of 50 at Għadira and 40 at Lunzjata on 24 Oct. Smaller numbers in Dec.

1991: 10-15 on most days (especially in Feb) at various sites in Jan-Mar to 13th. Then singles on 17-18th and 2 on 23 Mar. In autumn 2 on 19th, then daily from 22 Oct to end of year with a peak in mid-Nov; up to 20 at Għadira on a few dates, otherwise up to 15, with smaller numbers in Dec.
1992: Recorded almost daily in Jan-Mar to 24th, max 22+ from 3 sites on 11 Jan. Again almost daily from 25 Oct to 31 Dec with peak period from 31 Oct to 28 Nov; max 26 on 8 Nov.

Rufous Bush Chat *Cercotrichas galactotes* Rożinjol tax-Xagħri

1991: 1 on Comino on 27 Apr.
1992: 1 at Tal-Virtù on 9 Oct.

Robin *Eritachus rubecula* Pitirross

1990: Wintering in single to double figures of up to 30 in Jan- Feb but max of 60 at Binġemma on 3 Feb. Return passage evident from late Feb to late Mar with higher numbers more frequent, with max of 100 at Buskett on 3 Mar. Single figures till mid-Apr then 1-4 from May-Aug, mostly at Buskett. Up to 10 from 9th, reaching max of 50 on 30 Sep; but main autumn migration from mid-Oct to mid-Nov when treble figures almost daily from a few sites. Mostly up to 300 but 500+ at Buskett on 14 Oct. In medium to high double figures in Dec.
1991: Daily from 1 Jan - 25 Apr when mostly in high double figures (up to 70) in Jan-early Mar, but max of 100 at Buskett, Binġemma and Għajn Żejtuna on 5th, 12th and 20 Jan. Up to 20 after mid-Mar; then 1-2 from various sites in Apr-Jun and on most days in Jul-Aug when mostly 1-5 but max of 7 at Buskett on 25 Aug. More frequent in Sep with up to 10 on 29th; then main autumn migration from early Oct to late Nov. Mostly in high double figures of up to 80 but max of 100 at Binġemma on 26 oct and 3 Nov. Up to 20 in Dec but 35 at Buskett on 30th.
1992: Single to double figures daily at most sites in Jan-Mar, max 125+ from 6 sites on 8 Feb. Then 1-3 almost daily in Apr to 27th; 12 sightings of 1-3 in May, and 21 sightings of 1-2 from 14 Jun to 30 Aug, 14 sightings of 1-5 from 6th to 27 Sep, then daily from 1 Oct to year end, with high double to low treble figures from Oct-15 Dec, max 150+ at Binġemma and 100+ at Għajn Żejtuna on 7 Nov. Single to high double figures till end of year.

Nightingale *Luscinia megarhynchos* Rożinjol

1990: In spring from 31 Mar to 10 May, with most from mid-late Apr; in single figures with a max of 8 on Comino on 29 Apr. Singles on 3 dates from 15-21 May. In autumn 1 on 5th and 17 Aug, then almost daily from 25 Aug to 20 Oct with most in Sep; usually 1-7 but 10 at Buskett on 2 Sep.
1991: 1 on 19th, then daily from 23 Mar to 29 Apr with most from early to mid-Apr, mainly 1-10 but max of 20 on Comino on 16 Apr. Singles on 4 dates from 2-23 May. In autumn 1-2 on 3 dates from 3-8th, then 1-5 almost daily from 24 Aug to 6 Oct, but up to 10 at Binġemma on 18-19 Sep and 2 Oct. Singles on 7 dates from 8-27 Oct.
1992: 1 on 8th, then from 18 Mar to 23 May, with single figures almost daily, but 35+ on 17th and 15+ on 22 Apr at Comino. 1 on 7th, then from 14 Aug to 4 Nov, with single figures almost daily, max 10+ on 12-13 Sep at Buskett and Binġemma.

Bluethroat *Luscinia svecica* Kudirross Blu

1990: Up to 3 at Għadira from 1 Jan to 17 Mar and 1 at Xemxija on 27 Jan. In autumn singles on 22nd and 30 Sep, then 2 at Lunzjata and Xemxija on 12-13 Oct respectively and 12 sightings of singles from 14 Oct - 17 Nov and on 4th, 17th, 28th and 30 Dec, mostly at Għadira and Xemxija.
1991: Singles at Għadira frequently sighted in Jan-Mar to 10th then 1 there on 23 Mar and 2 at Qammieħ on 7 Apr. In autumn on 5 dates from 18 Sep - 5 Oct at Għadira, Ramla Valley and Comino, on 12th and 26 Nov at Xemxija and on 4 dates at Għadira from 18-29 Dec, all in singles.
1992: Singles at Għadira on 22 Mar and at Salina on 11 Apr. In autumn 7 sightings of 1-2 from 17 Oct to 10 Nov, most at Għadira.

Black Redstart *Phoenicurus ochruros* Kudirross Iswed

1990: Single figures (max 8) at various sites in Jan-Mar to 25th, but 10+ at Sgħajtar on 25 Feb and 15 at Ta' Ċenċ on 11 Mar. Singles on 2 Apr and 2-3 Jun. In autumn, 7 sightings from 14-30 Oct; singles but 6 at Buskett on 23rd, then main autumn migration period in Nov when up to 4 in various places. Fewer sightings in Dec.
1991: Almost daily sightings from 1 Jan to 31 Mar with most from early Feb to mid-Mar; mostly in single figures of up to 6 but 15 at Sarraflu on 9th and 25+ on Gozo on 15 Feb and 10 at Wied Mielaħ on 2 Mar. In autumn, singles on 19th, 25th and 29 Oct; then in single figures, max 7, daily in Nov at several sites, but 15+ on Gozo on 28 Nov. Less evident in Dec, with highest sightings of 5 on 30-31st.
1992: 1-10 almost daily in several places from Jan to 31 Mar. In autumn up to 20 on most days at various localities from 28 Oct to 31 Dec.

Redstart *Phoenicurus phoenicurus* Kudirross

1990: Almost daily from 4 Apr to 2 May; mostly 1-5 but 10+ at Portes des Bombes on 26th and 8+ on Comino on 29 Apr. Then 6 sightings of 1-2 from 6-20 May. In autumn, 1 on 20 Aug and 1-2 on 8 dates from 5-27 Sep; then daily from 29 Sep to 23 Oct with a peak in mid-Oct. Mostly in single figures of up to 6 but 8-10 on 13-14 Oct at Buskett. 1 on 27 Oct.
1991: Almost daily sightings (in singles) from 17 Mar to 12 Apr; then 1-8 daily (most on Comino) from 16 Apr to 9 May and 1-2 on 6 dates from 12-30 May. In autumn almost daily from 1 Sep to 26 Oct with most from mid-Sep to mid-Oct; mainly medium single figures but 15 at Buskett on 20 Sep, 12 on Comino on 14 Oct and up to 10 on 4 dates. 1 on 9 Nov.
1992: 1-2 on 3 dates from 7-15 Mar, then from 27 Mar to 23 May, with single to low double figures almost daily, max 16 at Comino on 25 Apr. Autumn passage from 6 Sep to 7 Nov, with single to low double figures on most days, max 25 from 4 sites on 11 Oct.

Whinchat *Saxicola rubetra* Bućaqq tas-Silla

1990: Singles on 8th and 12th, then almost daily from 14 Apr to 13 May with most from mid-late Apr. Single to low double figures but 60+ on 22nd and 50+ on 29 Apr, all on Comino. Last were 2 on 18 May. 1 at Ta' l-Għattuq on 22 Jul. In autumn 2 on 15th and 1 on 25-26 Aug, 1-2 on 3 dates from 10-21 Sep and singles on 6th, 8th and 17 Oct.
1991: Almost daily in spring from 30 Mar to 11 May with most sightings from mid-late Apr; mostly 1-25 but 40 on Comino on 26 Apr. Singles at 2 sites on 17 May. Few sightings in autumn: 2 on 11 Sep then singles on 6 dates from 15-29 Sep; 1 at Lunzjata on 11 Oct.
1992: Singles on 16 Feb and 22 Mar, then low double figures almost daily from 6 Apr to 17 May, but 30+ at Comino on 25 Apr. 2 on 24 May. In autumn 9 records of 1-6 from 19 Sep to 25 Oct.

Stonechat *Saxicola torquata* Bućaqq tax-Xitwa

1990: Daily sightings of 1-5 in Jan-Mar to 15th. In autumn daily from 30 Sep to end of year. Peak from mid-Oct to mid-Nov when mostly in double figures of up to 30 but max of 50 at Għadira on 22-24 Oct. Smaller numbers in Dec, but 50 at Marsa on 8th.
1991: Up to 10 at Għadira on 12 Jan and at Marsa on 3 Feb, otherwise 1-8 at several sites from Jan to early Mar; then 1-2 on most days till 24th. Daily in autumn from 5 Oct, with most from mid-Oct to late Nov; 25-30 on most days with max of 35 at Għadira on 31 Oct. 1-10 daily in Dec.
1992: Low double figures at many sites almost daily in Jan-Mar to 24th. 3 late birds at Għajn Riħana on 3 Apr. Daily in low double figures from 5 Oct to end of year, max 41 from 3 localities on 9 Nov.

Isabelline Wheatear *Oenanthe isabellina* Kuda Iżabellina

1991: 1 at Dwejra (Malta) on 23 Mar.

Wheatear *Oenanthe oenanthe* Kuda

1990: Singles on 9-10th and 15th, then almost daily from 22 Mar to 30 Apr; mostly 1-10 but 20+ at Qammieħ on 22 Mar and 15+ at Dwejra (Malta) on 3 Apr. 1 on 13 May. In autumn 1 on 12th, then daily from 19 Aug to 30 Sep with max of 30 at Marsa on 16 Sep, otherwise 1-10. 1-2 on most days from 1-31 Oct.
1991: Almost daily in spring from 8 Mar to 2 May with most from mid-Mar to mid-Apr; single figures, but 15 at Sarraflu on 19 Mar and 20 on Comino on 15 Apr. Singles on 4 dates from 7-23 May. In autumn 1 on 12th, then daily from 17 Aug to 7 Oct; mostly in high single figures, but max of 10 at Nadur (Malta) on 19 Sep. 12 sightings of singles on 9 dates from 9-23 Oct.
1992: Spring passage from 7 Mar to 14 May, with single to low double figures almost daily, max 20 at Dwejra, Malta on 9 Apr. Autumn passage from 19 Aug to 15 Oct, max 20 at Qawra on 9 Oct. 2 at Fiddien on 25 Oct.

Black-eared Wheatear *Oenanthe hispanica* Kuda Dumnikana

1990: 9 sightings of singles on 7 dates from 4 Apr to 1 May and again at Dwejra (Gozo) and Gharb on 2 Jun; in autumn on 15th, 18th and 29 Sep, and 7 Oct.
1991: 1-3 on 6 dates from 16 Mar to 2 Apr and on most days from 14-25 Apr, when mostly 1-2, but 4 on 14th and 3 on 21st at Iċ-Ċumnija; then singles on 1st and 3 May. In autumn 1 on 27-28 Sep and on 4 Oct.
1992: 10 sightings of 1-2 from 27 Mar to 26 Apr and 2 on 7 Sep.

Rock Thrush *Monticola saxatilis* Ġanbublu

1990: 1 on 25 Mar; then 2 at Għajn Tuffieħa on 3rd and singles on 9-10th and 20 Apr, and 5 May. In autumn 4 sightings of singles at Nadur (Malta) and Buskett on 15th and 21-22 Sep.
1991: On 3 dates in Mar with 2 on 23rd and 1 on 25th, both at Fomm Ir-Riħ, and 2 at Binġemma on 26th. Then 2 at Iċ-Ċumnija on 17 Apr and 1 at Binġemma on 8 May.
1992: Singles at Qammieħ on 8th and at Naxxar on 14 Mar, at Dwejra, Gozo on 19 Apr, at Dwejra, Malta on 14 May and at Nadur, Malta on 20 Sep.

Blue Rock Thrush *Monticola solitarius* Merill

1990-91: Present all the year round, mainly along the seacliffs, but also a few inland, mostly in the post-nuptial period. Most sightings usually during Mar-May and Sep-Oct when up to 10 from a few localities.
1992: Single to low double figures at a number of sites, mainly coastal cliffs and a few records inland, throughout the year.

Ring Ouzel *Turdus torquatus* Malvizz tas-Sidra Bajda

1990: Singles at Ta' Pinu on 26 Oct and at Wardija Pt on 31 Dec.

Blackbird *Turdus merula* Malvizz Iswed

1990: Frequent sightings from 14 Jan to 7 Mar at a few sites; mostly singles but 2-3 on 3 dates. Then 2 on 11th and singles on 19 Apr and 1 May. In autumn, 1-2 on most days from 24 Oct - 9 Dec; then almost daily from 20-31 Dec, singles but 5 at Buskett on last date.
1991: Present in 8 different localities in Jan-Feb with frequent sightings of 1-5 mostly at Buskett, but max of 7 there on 2 Feb. Singles on 2nd and 11 Mar. In autumn singles on 8 dates from 18 Oct to 27 Nov and on 28 Dec.
1992: 10 sightings of 1-2 from Jan-Mar to 11th. 19 sightings of 1-2 from 18 Oct to 29 Dec. Most at Buskett.

Fieldfare *Turdus pilaris* Malvizzun tal-Qtajja'

1990: On 4 dates in Feb with 1 at Dwejra (Malta) on 2nd, 2 at Binġemma on 18th and at Qammieħ on 25th, then 1 at Buskett on 26th. In autumn singles at Wied il-Luq on 18 Nov and at Għadira on 31 Dec.

1991: 1 on 24 Feb and 4 on 16 Nov, at Buskett.
1992: 2 at Għadira on 8 Jan and 1 at Comino on 10 Feb.

Song Thrush *Turdus philomelos* Malvizz

1990: Almost daily sightings in Jan-Apr to 5th; highest numbers from late Jan to mid-Feb with max of 20 at Binġemma on 28 Jan and on Comino on 2 Feb, otherwise up to 15. Return passage evident from late Feb, when a slight increase in daily sightings noted. In autumn 2 on 6th, then daily sightings from 12 Oct to end of year; peak from mid-Oct to mid-Nov and in early Dec. Medium double figures on most days but 200 at Bidnija on 23 Oct and up to 100 on 4 other dates. Decrease in sightings evident in Dec.
1991: Single to low double figures of up to 20 almost daily from Jan to mid-Mar, but max of 25 at Buskett on 12 Jan. Then 1-4 frequent till early Apr and singles on 4 dates from 16 Apr to 1 May. 6 sightings of singles at Għadira, Chadwick Lakes and Binġemma in Jun-Aug. Autumn migration from 5 Oct, with most between mid-Oct and mid-Nov; mostly in double figures of up to 50 but 80 on 26 Oct and 100 on 3 Nov at Binġemma. In single figures till end of year.
1992: Regular sightings from Jan to 22 Mar, then 7 records of 1- 2 till 29 Apr. Max 24 from 4 sites on 19 Mar. In autumn recorded from 3 Oct till end of year, max 54 on 9th and 11 Oct.

Redwing *Turdus iliacus* Malvizz Aħmar

1990: 1 at Buskett on 26 Feb, then 1 on 4th and 2 on 19 Dec, at Għadira.
1991: 6 sightings of 1-5 from 2-27 Feb, all at Buskett except for 1 at Għadira on 12th. 1 again at Għadira on 26 Dec.
1992: 1 at Għadira on 20th and 2 at Buskett on 22 Nov.

Mistle Thrush *Turdus viscivorus* Malvizzun Prim

1990: 1 at Buskett on 25 Nov.
1992: Singles at Ta' Ċenċ on 29 Feb; at Buskett on 24 Oct; at Ta' Pinu on 8th and at Lunzjata on 15 Nov.

Cetti's Warbler *Cettia cetti* Bagħal ta' l-Għolliq

1990-92: Breeding resident in suitable areas in Malta and Gozo. Single figures in all areas throughout the year but an increase in numbers (usually up to 15-20) from May - Oct.

Fan-tailed Warbler *Cisticola juncidis* Bagħal ta' l-imrewħa

1990-92: Widespread and commonly breeding in Malta and Gozo with occasional birds on Comino. Usually in single to low double figures in winter but an increase in numbers from Mar to mid-Nov (35-60 in May-Jul 1990, and 35-50 in Jun-Sep 1992 in suitable areas).

Grasshopper Warbler *Locustella naevia* Bagħal tal-Ġurati

1990: 1 at Lunzjata on 8 Oct.

Savi's Warbler *Locustella luscinioides* Bagħal Aħmar

1990: 2 on 19th and 1 on 22 Mar at Xemxija; then 1 at Għadira from 4-13 Oct.
1991: Singles at Rabat on 9th and at Xemxija on 15 Sep and at Għadira on 29 Oct.
1992: Singles at Għadira on 6 Mar, 18th and 26 Oct and 3rd and 12 Nov, at Xemxija on 19 Mar and at Rabat on 21 Oct.

Moustached Warbler *Acrocephalus melanopogon* Bagħal Qastni

1990: Singles at Għadira on 6 Jan and 9 Feb; then at Xemxija on 4th and again at Għadira on 14th, 17th and 19 Nov.
1992: 1 at Għadira on 15 Jan and 1-2 at Lunzjata on 3 dates from 21 Nov to 1 Dec.

Sedge Warbler *Acrocephalus schoenobaenus* Bagħal tas-Simar

1990: In spring 1 on 13th, then almost daily from 22 Mar to 16 May (daily from 22 Apr to 16 May). Mostly 1-10 but 20 on 26 Apr and 15 on 8 May at Xemxija. Singles on 21 May, 2nd and 8 Jun. All autumn sightings of singles: on 4 dates from 4 Aug to 11 Sep and on 8 dates from 29 Sep to 24 Oct, mostly at Lunzjata. Late bird at Salina on 15 Nov.
1991: Singles on 23 Feb and 2 Mar, then almost daily from 11 Mar to 30 May with most from mid-Apr to mid-May. In single figures, with max of 8 at Għadira on 4 May. In autumn singles on 7 dates from 4 Sep to 15 Oct, mostly at Ramla Valley.
1992: Spring passage from 9 Mar to 28 May, max 10 at Comino on 16 May. In autumn singles on 25 Aug, 4 Sep and on 13 dates from 24 Sep to 15 Nov.

Blyth's Reed Warbler *Acrocephalus dumetorum* Bagħal ta' Blyth.

1990: 1 at Lunzjata on 24 Oct. (1st record for the Maltese Islands).
1992: 1 at Wied il-Luq on 22 Aug.

Marsh Warbler *Acrocephalus palustris* Bagħal ta' l-Għadajjar

1990: Singles at Chadwick Lakes on 11th, at Buskett on 25-26th, at Lunzjata on 28th and at Xemxija on 31 Aug; then again at Lunzjata on 2nd and at Xemxija on 5th and 16th, at Lunzjata on 26th (2 birds) and at Ramla Valley on 30 Sep. Again at Xemxija on 15th and 17 Oct.
1991: 3 sightings in Sep: 2 at Lunzjata on 2nd and singles at Buskett on 8th and again at Lunzjata and Ramla Valley on 13th.
1992: Singles at Wied il-Luq on 29 Aug and at Ramla Valley on 26-27 Sep and 3 Oct.

Reed Warbler *Acrocephalus scirpaceus* Bagħal tal-Qasab

1990: Six sightings of singles on 5 dates from 25 Apr to 13 May, mostly at Xemxija; then again singles at Għajn Rihana on 22nd and 24 Jun. In autumn almost daily sightings from 10 Aug to 19 Oct with most in Sep; max of 5 at Għajn Żejtuna on 16 Sep, otherwise 1-3. Late singles on 26th and 31 Oct, and on 3-5 Nov.
1991: Singles on 2nd, 4th and 14 Apr; then 7 sightings of 1-3 on 6 dates from 7-25 May and 1 on 2 Jjun; most at Ramla Valley. In autumn 4 sightings of singles from 4-11th, then almost daily from 15 Aug to 31 Oct with most from early Sep to early Oct. In single figures of up to 5 but max of 10 at Xemxija on 8 Sep.
1992: 9 sightings of 1-2 from 11-30 May in spring. In autumn almost daily from 2 Aug to 8 Nov, max 3 at Għadira on 10th and 12 Oct.

Great Reed Warbler *Acrocephalus arundinaceus* Bagħal Prim

1990: Early spring migrant on 18 Mar, then 9 sightings of 1-2 on 7 dates from 3-18 Apr and daily from 20 Apr to 17 May; mostly 1-4, but 5-6 at Xemxija and Lunzjata on 1-4th and 5 at 2 different sites on 13 May, 1 on 2 Jun. In autumn singles on 15th and 17th, then 12 sightings of 1-2 on 9 dates from 26 Aug to 23 Sep and 8 sightings of singles from 1-20 Oct. Most at Xemxija. Late singles on 15th and 17 Nov.
1991: Almost daily sightings in spring from 1 Apr to 20 May; mostly 1-2 but 4 on 14th and 3 on 17 Apr at Xemxija. In autumn singles on 15th, 18th and 29 Aug; then 14 sightings from 7 Sep to 3 Nov, all of singles except for 2 at Buskett on 11 Sep and at Binġemma on 4 Oct
1992: In spring 1 at Lunzjata on 19 Mar, then on most days from 2 Apr to 17 May, max 6 at Ramla Valley on 1 May. 1 at Ghadira on 5 Jun. In autumn 19 sightings of 1-3 from 1 Aug to 31 Oct. Late bird at Lunzjata on 12 Nov.

Olivaceous Warbler *Hippolais pallida* Bekkafik Griż

1991: Singles at San Anton on 25 May and 7 Jun.

Icterine Warbler *Hippolais icterina* Bekkafik Isfar

1990: Almost daily from 28 Apr to 26 May (most in early to mid-May); highest 10 at Għadira on 15 May, otherwise 1-4. In autumn 1-3 on 4 days from 14-26 Aug, then singles on 1-2nd, 19th and 30 Sep and on 5 days from 5-24 Oct.
1991: Almost daily in spring from 17 Apr to 26 May; with a peak from early to mid-May when up to 15 on most days, but max of 20 at Comino on 12th. In autumn singles on 4 dates from 3-31 Aug and 6 sightings on 5 dates from 21 Sep - 5 Oct.
1992: Spring passage from 16 Apr to 27 May; usually single to low double figures but 50+ at Comino on 16 May. 1 at Dwejra, Malta on 6 Jun. In autumn singles on 14 days from 1 Aug to 1 Nov.

Melodious Warbler *Hippolais polyglotta* Bekkafik ta' l-Għana

1991: 1 at Dwejra (Gozo) on 17 Apr.

Dartford Warbler *Sylvia undata* Bufula tax-Xagħri

1990: 1 at Għadira on 2-4 Dec.
1991: Singles at Dwejra (Malta) on 25th and at Għar Lapsi on 27 Feb.

Spectacled Warbler *Sylvia conspicillata* Bufula Ħamra

1990-92: More widespread (and in slightly larger numbers) than in recent years. Sighted on the three main islands in single figures (once up to 10) with an increase in numbers evident from Mar-Oct.

Subalpine Warbler *Sylvia cantillans* Bufula Passajra

1990: In spring, 2 on 1st and 1 on 10th, then 1-2 daily from 25-31 Mar and on most days from 2 Apr to 13 May when usually up to 4. (but most sightings till mid-Apr). In autumn daily from 14 Jul to 9 Oct, with most from late Jul to mid-Sep; mostly in single to low double figures of up to 25 but max of 30 at Binġemma on 25 Aug and 1 Sep. 1-2 on 4 dates from 13-26 Oct.
1991: Daily on spring migration from 9 Mar to 6 May with a peak in mid-Mar and early to mid-Apr. Mostly up to 15, but 30 on 19 Mar and 20 on 7th and 16 Apr, all at Comino. 2 on 11 May. In autumn 1 on 13th, then daily from 20 Jul to 17 Oct with main migration period from early Aug to mid-Sep; mostly in low double figures of up to 30, but 45 at Binġemma and 35 at Wied Żembaq on 15 Aug. 1 at Lunzjata on 3 Nov.
1992: Spring passage from 6 Mar to 27 Apr; single figures recorded on most days but 10 on 24 Mar. 1 on 9th and 2 on 11 May. Autumn passage from 15 Jul to 20 Oct, with single to low double figures almost daily, max 25+ at Binġemma on 8 Aug. 1 at Buskett on 30 Oct.

Sardinian Warbler *Sylvia melanocephala* Bufula Sewda

1990-92: Common breeding resident in stable numbers (usually in low double figures) on the three main islands. Slight evidence of migration in winter 1990-91.

Rüppell's Warbler *Sylvia rueppelli* Bufula tal-Pavalor

1992: 1 male at Qammieħ from 11 to 30 Mar.

Lesser Whitethroat *Sylvia curruca* Bekkafik Irmiedi

1990: Singles at Għajn Żejtuna on 16th and 28 Sep; at Xemxija on 17th and at Binġemma on 18 Oct.
1991: 1 at Għadira on 30 Nov-6 Dec.

Whitethroat *Sylvia communis* Bekkafik Aħmar

1990: Almost daily from 6 Apr to 21 May, with most from mid-Apr to mid-May; usually 1-8 but 30+ on Comino on 29 Apr and 15 at Binġemma on 1st and at Comino on 13 May. 1 at Wied Żembaq on 23rd and 31 Jul, then on 4 dates from 10-25 Aug and 6 sightings on 5 dates from 30 Sep to 18 Oct. All autumn sightings of singles.
1991: In spring 1-3 on 6 dates from 19 Mar to 8 Apr, then daily from 11 Apr to 15 May, with max of 30 on Comino on 16 Apr and 4 May, otherwise 1-15. 1-2 on most days from 18-31 May. Only two sightings in autumn: singles at Għadira on 14th and at Buskett on 29 Aug.
1992: 1 at Marsa on 20 Mar, then from 6 Apr to 27 May, max 100+ on 10th and 80+ on 16 May at Comino, otherwise single to low double figures on most days. Not recorded in autumn.

Garden Warbler *Sylvia borin* Bekkafik

1990: Singles on 13th and 20th, then daily from 24 Apr to 21 May when mostly up to 20 but 30+ on Comino on 29 Apr. 1-5 on 4 dates from 25-30 May and 1 on 9 Jun. In autumn 1-5 on 5 dates from 5-21 Aug, then almost daily from 25 Aug to 27 Oct with most in Sep; mostly in double figures of up to 30 but 100+ at Buskett on 1-2 Sep. 1 at Binġemma on 18 Nov.
1991: 1 on 2nd, then daily from 12 Apr to 31 May with most from late Apr to late May. Mostly in double figures of up to 60 but 100+ on Comino on 12 May. In autumn daily from 15 Aug to 26 Oct with peak migration period from early Sep to early Oct; mostly in double figures of up to 40 but 50 at Buskett on 7 Sep and at Binġemma on 2 Oct. 1-3 at Binġemma on 2-3rd and 1 at Buskett on 16 Nov.
1992: Spring passage from 14 Apr to 30 May; mostly in double to low treble figures but 840+ on 16 May (including 700+ on Comino). Autumn passage from 2 Aug to 12 Nov, with single to medium double figures almost daily, max 30 at Wied il-Luq and 25 at Binġemma on 20 Sep and 30 at Wied il-Luq and 20 at Binġemma on 26 Sep. 2 on 17 Nov.

Blackcap *Sylvia atricapilla* Kapinera

1990: In double figures of up to 50 on most days in Jan-Mar, most at Binġemma and Buskett, but 100 on 3rd and 80 on 22 Mar at Buskett. Then 1-4 till 12 Apr. In autumn, 1-4 on 4 dates from 15- 21 Sep, then daily from 28 Sep to end of year. In low double figures from 6th with higher numbers (up to 60) from late Oct reaching a max of 100 on 17th and 200 on 26 Dec at Ħas-Saptan.
1991: In low treble figures on a few days from Jan to early Mar, when mostly up to 200 but 400-500 at Buskett on 24-27 Feb. Then in low double figures till early Apr with regular sightings till 28th. 1-2 on 4 dates from 8-12 May. In autumn 1 on 19 Sep and 1-3 on 4 dates from 1-6 Oct; then on most days from 12 Oct to end of year when mostly in single figures but max of 10 at Buskett on 2 Nov and 29 Dec.
1992: Regularly recorded in single to medium double figures from Jan to 8 Apr, max 100+ at Buskett on 7 Mar.Then 8 sightings of 1-3 till 28 Apr. 1 at Buskett on 28 Jun. In autumn recorded from 19 Sep to end of the year, with single to low double figures almost daily, but 60 at Buskett on 1 Nov.

Yellow-browed Warbler *Phylloscopus inornatus* Vjolin tal-Faxx

1990: 2 on 19th and 1 on 20 Oct at Wied il-Luq.
1991: 2 at Buskett on 15th and 1 at Xemxija on 31 Oct.
1992: 1 at Għadira on 10 Oct, 1 at Buskett on 11-17 Oct and 1 at Fiddien on 8 Nov.

*** Radde's Warbler *Phylloscopus schwarzi* Vjolin ta' Radde**

1990: 1 ringed at Għadira on 6 Nov and retrapped next day. (1st record for the Maltese Islands).

Bonelli's Warbler *Phylloscopus bonelli* Vjolin Bajdani

1990: 1 at Chadwick Lakes on 18 Aug.
1991: 12 sightings of 1-3 on 11 dates from 22 Mar to 16 Apr; mostly at Għadira with only 4 sightings elsewhere.
1992: Singles at Għadira on 12 Mar, and on 2nd, 3rd and 6 Apr, and 2 at Xemxija on 31 Mar.

Wood Warbler *Phylloscopus sibilatrix* Vjolin Ħadrani

1990: In spring singles on 29-31 Mar, then daily sightings from 3 Apr to 21 May; peak from late Apr to mid-May when mostly in double figures of up to 60, but max of 100 at Xemxija on 3 May. Late singles on 26th and 30 May. In autumn, 3 sightings on 25-26 Aug; in singles but 5 at Wied il-Luq on the 26th, then singles on 3 Sep and 5 Oct.
1991: Daily in spring from 25 Mar to 19 May with a peak in late Apr; in single to low double figures, with max of 30 at Salina on 26th and on Comino on 27 Apr. 1 on 22 May. In autumn 1 on 11th, then 12 sightings on 10 dates from 25 Aug to 28 Sep; mostly 1-2 but 6 at Buskett on first date. Singles on 5th and 18 Oct.
1992: 1 on 24 Mar, then from 3 Apr to 21 May, max 50+ at Comino on 16 May, otherwise up to medium double figures daily. In autumn 11 sightings of 1-5 from 4 Sep to 18 Oct.

Chiffchaff *Phylloscopus collybita* Vjolin tax-Xitwa

1990: Wintering in double figures of up to 60 in several sites from Jan to mid-Mar but max of 100 at Lunzjata on 27-28 Jan and 3 Feb and at Għajn Riħana on 4 Feb. Single figures after mid-Mar with 1-2 regularly till 25 Apr, and 1 on 6 May. In autumn 1 on 1st, then daily from 12 Oct to 31 Dec; always in double figures (up to 40) but max of 50 at Lunzjata on a few days from late Oct to mid-Nov.
1991: Daily from Jan to early Apr, mostly in double figures (up to 60 from a few localities), but low treble figures from late Feb to mid-Mar, with max of 120 at Għadira on 5th and 12 Mar. Singles on 6 dates from 18 Apr to 18 May. 2 at Buskett on 7 Jul. First sighting in autumn on 5 Oct, then in single figures till the 22nd, and in low double figures till end of year with max of 30 on 27 Oct, 7th and 26 Nov and 28 Dec, mostly at Lunzjata.
1992: Regular from Jan till 13 Apr, max 75+ from 2 localities on 25 Feb. Singles at Għadira and Comino on 27 Apr, at Lunzjata on 6 May and at Għadira on 16 May. In autumn from 8 Oct to end of year, max 30+ at Għadira on 7 Nov.

Willow Warbler *Phylloscopus trochilus* Vjolin Pastard

1990: In spring 1 on 15th, then almost daily from 25 Mar to 13 May, with most in Apr, when daily. Mostly up to 10 but max of 30 on Comino on 29 Apr. Singles on 17th and 20 May. In autumn 10 sightings of 1-5 on 6 dates from 14-27 Aug, then daily from 30 Aug to 23 Oct. Mostly in single figures of up to 5 but max of 10 at Għadira and Xemxija on 1st, again at Xemxija on 13th and at Binġemma on 20 Oct. 1 in full song at Buskett on 31 Dec.
1991: Daily sightings on spring migration from 9 Mar to 13 May; peak from late Mar to early Apr, when in double figures of up to 45 daily but max of 80 at Għadira on 25 Mar. 1-20 outside peak period. Singles on 5 days from 16-22 May. In autumn daily from 17 Aug to 27 Oct with most in Sep; mostly 1-12 but 20 at Xemxija on 8 Sep.
1992: Spring passage from 12 Mar to 21 May when single to medium double figures almost daily, max 60+ at Għadira on 30 Mar. Autumn passage from 22 Aug to 3 Nov; single to low double figures on most days, max 15+ at Għadira and 10+ at Xemxija on 12 Oct.

Goldcrest *Regulus regulus* Bufula tal-Qamar

1990: On most days from Jan-Mar to 24th; mostly 1-3 but 4 at Xemxija on 24th and 5 at Buskett on 26 Feb. In autumn almost daily sightings from 26 Oct to 23 Nov; mostly up to 5, but 10 at Ħas-Saptan on 15 Nov, 1-3 on 6 dates in Dec, mostly at Xemxija.
1991: Singles at Buskett on 20th and at Xemxija on 29 Jan, then 3 at Ramla Bay on 2 Mar.
1992: 1 at Buskett on 7 Mar. In autumn from 18 Oct to end of year; in single to low double figures on most days, max 25+ at Ramla Bay on 14th and at Ħas Saptan on 15 Nov.

Firecrest *Regulus ignicapillus* Bufula tat-Toppu Aħmar

1990: 2 on 1st, then singles on 25 Jan, 3rd and 26 Feb, and on 6 dates at Xemxija from 1-25 Mar. In autumn 14 sightings on 13 scattered dates from 6 Oct to 7 Dec; mostly 1-2 but 5 at Xemxija on 17 Nov and 4 at Dwejra (Malta) on 4 Dec. 1-3, mainly at Għadira, from 24-31 Dec.
1991: Daily from 1 Jan at Għadira where 2 birds were present till 2 Feb, then singles to 15 Mar. Only 4 sightings of singles elswhere. 1 on 29 Mar. In autumn singles on 5 dates from 28 Oct to 26 Nov, then 2 on 23 Dec; all at Xemxija, with one sighting elswhere on 10 Nov.
1992: Recorded from 17 Oct to end of year, max 10+ at Buskett on 22 Oct and 10 Dec.

Gold/Firecrest *Regulus* sp.

1990: 13 sightings from 7 Jan to 1 Apr (most from late Jan to mid-Feb) with max of 20 at Wied il-Luq on 27-28 Jan, otherwise 1-5. In autumn almost daily sightings from 18 Oct to end of year with most from late Oct to late Nov; usually up to 6, but max of 10 on 11th and 21-22 Nov.
1991: 1-3 on most days from 1 Jan to 21 Feb, then 6 sightings of singles from 7-23 Mar. In autumn 1 on 11 Oct, 1-2 on 4 dates from 3-12 Nov and singles on 14th and 29 Dec.
1992: 6 sightings of 1-4 from 8 Jan to 7 Mar. Recorded from 10 Oct to end of the year, max 40+ at Buskett on 20 Nov.

Spotted Flycatcher *Muscicapa striata* Żanżarell tat-Tikki

1990: In spring 1 on 18th, then several sightings daily from 22 Apr to 21 May; mostly in double figures of up to 30 but 100+ on Gozo on 10 May. 1-2 on 4 dates from 27 May - 26 Jun. In autumn 1-2 on 6 dates from 9 Aug to 11 Sep, then daily sightings of 1-3 from 28 Sep to 20 Oct. Last sighting on 31 Oct.
1991: Almost daily sightings from 16 Apr to 29 May, with most from late Apr to mid-May; usually up to 10, but 20 on Comino and 15 at Salina on 26 Apr. At least two pairs bred successfully at Buskett in summer. Autumn migration from 25 Aug when on most days in single figures till 14 Oct. Peak from late Sep to early Oct with max of 6 at Wied il-Luq on 29 Sep.
1992: Spring passage from 16 Apr to 28 May, usually single to low double figures, max 25+ at Binġemma on 16 May. 1-12 from Jun to Aug at Buskett where 3 pairs bred. Autumn passage from 4 Sep to 18 Oct, when up to 6 recorded daily.

Red-breasted Flycatcher *Ficedula parva* Żanżarell Sidru Aħmar

1990: 10 sightings on 9 dates from 22 Sep to 21 Oct; all singles except for 2 on 13 Oct. 1 on 5 Nov. Most sightings at Wied il- Luq.
1991: Singles on 9 dates from 18 Sep to 28 Oct, but 3 at Wied il- Luq on 12 Oct. Most sightings from Binġemma and Wied il-Luq.
1992: 1 on 23 Sep and 6 singles from 2nd to 17 Oct. Most at Buskett.

Semi-collared Flycatcher *Ficedula semitorquata* Żanżarell tal-Lvant

1990: 1 at Lunzjata on 2 May.
1991: 1 at Qbajjar on 31 Mar.
1992: 1 at Ta' l-Għattuq on 12 Apr.

Collared Flycatcher *Ficedula albicollis* Żanżarell tal-Kullar

1990: Singles on 9th, 12th and 17th, then almost daily from 26 Apr to 11 May with a peak in early May; in single figures, but 10+ at Xemxija on 3 May. Singles on 19 May and at Lunzjata on 3-4 Oct.
1991: Only in spring when recorded on 10 dates from 27 Mar to 8 May (peak in mid-Apr); singles, but 2 at Għadira on 16 Apr.
1992: Spring passage from 12 Apr to 15 May with up to a total of 14 recorded daily. None in autumn.

Pied Flycatcher *Ficedula hypoleuca* Żanżarell Iswed

1990: 1 on 8th and 2 on 9th, then daily from 14 Apr to 13 May with a peak from late Apr to early May; mostly in single to

double figures of up to 30, but 40+ on Comino on 29 Apr and 50 at Marsa on 1 May. Singles on 18th and 21 May. In autumn 2 on 26 Aug, then singles frequently from 1 Sep to 7 Oct, but max of 5 at Wied il-Luq on 29 Sep.
1991: 1 on 26 Mar, then almost daily from 2 Apr to 22 May with most from mid-late Apr; usually up to 20, but 25-35 on 4 dates from 19-26 Apr on Comino. Late singles at Buskett and Lunzjata on 4 Jun. In autumn 1 on 3rd and 4 singles from 25-31 Aug, then 1-2 almost daily from 7-20 Sep and singles on 9th and 14 Oct. Most autumn sightings at Buskett.
1992: Spring passage from 1 Apr to 19 May, with single to low double figures almost daily, max 50+ at Comino on 24 Apr. In autumn 17 sightings of 1-2 from 29 Aug to 12 Oct.

Penduline Tit *Remiz pendulinus* Pendulin

1990: Almost daily sightings from 8 Jan to 22 Mar; mostly in single figures, with higher numbers between late Jan and mid-Mar when up to 10 on a few dates, but max of 20 on 8th and 15 on 11 Feb at Xemxija. Most at Għadira and Xemxija, with a few sightings at Lunzjata, Ramla Bay and once at Buskett. Again almost daily in autumn from 23 Oct onwards, with most from early Nov to mid-Dec; always in single figures, with max of 8 at Lunzjata on 8th and 7 at Għadira on 17 Nov. Present in same localities as in winter/spring.
1991: Almost daily sightings in Jan-Mar to 23rd (peak from early to mid-Mar), mostly in single figures of up to 5, but 12 at Ramla Bay on 2nd and 10-15 at Xemxija on 11-13 Mar. 1 on 30 Mar. Mostly at Għadira, Xemxija and Lunzjata, with sightings from 5 other localities.
1992: 13 sightings of 1-8 from 8 Nov to 29 Dec. Mostly at usual sites.

Golden Oriole *Oriolus oriolus* Tajra Safra

1990: Daily in spring from 22 Apr to 14 May when mostly in single figures of up to 6, but 20 at Dwejra (Malta) on 25 Apr and 15 at Binġemma on 1 May. 1-5 on 6 dates from 19 May to 4 Jun and 1 on 26 Jun. In autumn 13 sightings of 1-5 from 25 Aug to 15 Sep; mostly at Lunzjata and Buskett.
1991: Almost daily in spring from 10 Apr to 31 May; in single figures, with max of 5 at Lunzjata on 27 Apr and 17 May. In autumn 7 sightings of 1-5 from 5-16 Sep, but 8 at Buskett on 8th.
1992: Spring passage from 24 Apr to 1 Jun when single to low double figures almost daily, max 60+ at Lunzjata on 6 May. Singles on 11 Jun, 4 Jul and 19 Aug, then 11 sightings of 1-2 from 2nd to 30 Sep.

Red-backed Shrike *Lanius collurio* Kaċċamendula Ħamra

1990: Singles at Lunzjata on 13th, 15th and 21st, and at Wied il- Luq on 29 Sep.
1991: 1 on 13th and 2 on 14 May on Comino. In autumn singles at Ramla Valley on 25th and at Lunzjata on 26 Sep; at Xagħra on 4th, again at Lunzjata on 11th and at Wied il-Luq on 20 Oct.
1992: 1 at Wied il-Luq on 6 Aug and 1 at Għadira on 19-20 Oct.

Great Grey Shrike *Lanius excubitor* Kaċċamendula Griża Prima

1992: 1 at Iċ-Ċumnija on 30-31 Mar.

Woodchat Shrike *Lanius senator* Kaċċamendula

1990: On most days in spring from 6 Apr to 19 May, with a peak from mid-late Apr; usually up to 5, but 15 on 22nd and 8+ on 29 Apr on Comino. 2 at L-Ahrax on 4 Jun. In autumn 1-2 almost daily from 9 Aug to 2 Sep but 10 on 12th and 4-5 on 13-14 Aug at Dwejra (Malta). 1 on 30 Sep.
1991: 12 sightings of 1-2 from 16 Mar to 8 Apr but 5 on Comino on 19 Mar; then daily from 11 Apr to 5 May, with a peak in mid-Apr when up to 10 on Comino on 16-17th, otherwise 1-6. Singles on 4 dates till 25 May. In autumn 1-3 almost daily from 11-26 Aug, then singles on 7-8th, 29 Sep and 4 Oct.
1992: Spring passage from 27 Mar to 22 May, with single to low double figures almost daily, max 20+ at Comino on 17 Apr, 2 on 30th and 1 on 31 May. Singles on 15th and 21 Jun. In autumn 15 sightings of 1-4 from 12 Aug to 7 Sep and 1 on 6 Oct.

Starling *Sturnus vulgaris* Sturnell

1990: Treble figures on most days from Jan to early Mar when usually up to 500, but 800+ at Mosta on 2 Jan and 600 at Għadira on 27 Jan. In single figures irregularly till 24 Mar, then singles on 4 dates till 28 Apr. In autumn 1-10 on 4 dates from 8- 26th, then daily sightings from 30 Sep to end of year with a peak from mid-Oct to mid-Nov. Mostly in double to low treble figures, but over 1000 on 5 days with a max of 3000 at Għadira on 14 Nov.
1991: High wintering numbers in Jan-Feb with max of 2000 at B'Kara on 11th and at Mosta on 16 Jan, and 1500 at Valletta on 25 Feb. In smaller numbers on a few days in Mar to 24th with max of 135 on 10th. 1-2 on 24-25 Jun and 1 on 29 Jul, then 1-9 regularly in Aug-Sep (mainly at Marsa where possibly bred). Autumn migration from 4 Oct when daily till end of year (peak in Nov); mostly in double to treble figures of up to 500, but 1000+ at Luqa on 17 Nov. Smaller numbers in Dec.
1992: Wintering in double to treble figures till 14 Mar, max 900+ at Valletta on 1 Feb, then single to low double figures till 25 Mar, 2 singles on 6-7 Apr and 1 at Pieta on 19 Jun. 1-7 on 21 dates from 31 Jun to 25 Sep at Marsa (where again it possibly bred) and 1 at Xemxija on 6 Aug. In autumn from 29 Sep to year end; in double to treble figures daily, max 2000+ at Valletta roost on 3 Nov, 2000+ at Floriana roost on 21 Dec and 1507 at Birkirkara roost on 7 Nov.

Spanish Sparrow *Passer hispaniolensis* Għammiel tal-Bejt

1990-92: Abundant breeding resident.

Tree Sparrow *Passer montanus* Għammiel tas-Siġar

1990-91: Breeding resident in small numbers at various localities where resident throughout the year; mostly in single figures, but double figures of up to 50 usually in summer and autumn. Higher numbers in Oct-Dec, due to migrants.

1992: Single figures regularly at various sites throughout year but double to low treble figures from mid-Jun to mid-Nov, max 200+ at Rabat on 28 Oct.

Chaffinch *Fringilla coelebs* Sponsun

1990: Single to low double figures from Jan to mid-Mar, but up to 50 in Jan and 100+ on 26 Feb at Buskett. 1-6 present in suitable sites, mainly at Wied il-Luq, Binġemma and Għajn Żejtuna from mid- Mar to Sep. Autumn passage evident from early Oct, when in single figures, with peak migration from mid-Oct to mid-Nov and in mid-Dec. Mostly in double figures of up to 80 but 130+ at Buskett on 28 Oct and 150+ at Lunzjata on 4 Nov.
1991: Single to low double figures in Jan-Mar, but return passage evident from early Feb to mid-Mar when mostly in double figures (up to 50) but 100+ at Buskett on 8 Mar. Up to 8 at Buskett (suggesting breeding) and sightings of up to 3 from various other localities in Apr-Sep. Autumn migration from Oct to Dec, with most in Nov; max of 30 at Xemxija on 25 Nov, otherwise 1-20.
1992: Single to low double figures almost daily from Jan to the end of May. In Jun-Sep low single figures seen almost daily at various localities, but most at Buskett. Single to low double figures from Oct to year end, max 50+ at Buskett on 22 Oct.

Brambling *Fringilla montifringilla* Sponsun Selvaġġ

1990: Singles at Rabat on 10 Oct and at Għadira on 7 Nov, 2 at Clapham Junction on 10 Nov.
1991: 1 at Għadira on 10 Nov.
1992: 1 male at Rabat on 11 Nov.

Serin *Serinus serinus* Apparell

1990: 1-5 on 16 dates in Jan-Feb, then singles on 4 dates from 3- 16 Mar, 1st and 28 Apr, 8 May, 4 Jun, 11 Aug and 18 Sep. In autumn 1-3 regularly from 14 Oct to 11 Dec, then in higher numbers daily till end of year. Usually up to 30 but max of 40 at Għadira on 24th and of 50 at Ħas-Saptan on 26th.
1991: Mostly in double figures of up to 30 in Jan-Feb but max of 40 at Għadira on 7 Jan and 35 at Buskett on 17 Feb. Smaller numbers (up to 10) in Mar, then 1-4 regularly till late May and throughout summer in a few localities. On autumn migration 1-4 irregularly from early Oct to early Dec, but 12 at San Anton on 4 Nov. A slight increase in sightings in late Dec.
1992: 4-11 birds on 22 dates in Jan-Mar to 24th, then singles on 7 dates from 14 Apr to 28 May and 2 at Chadwick Lakes on 15 Aug. 4 sightings of 1-2 from 1 Oct to 26 Oct, then single to low double figures from 7 Nov to end of year, max 30+ roosting at Birkirkara on 7 Nov.

Greenfinch *Carduelis chloris* Verdun

1990: 1-5 irregularly from Jan to late Feb and singles on 10-11th and 10+ at Qammieħ on 24 Mar. A few sightings of 1-2 in Apr-May but 6 on 4 Apr. 1-2 at Għadira in Jun and from a few other sites in Jul-Sep. Autumn migration from 5 Oct to end of year with a peak from late Oct to late Nov; mostly in double figures but 200+ at Mġarr (Malta) on 31 Oct and 100+ at Għallis on 27 Nov. Up to 30 in Dec.
1991: Up to 15 in early-mid Jan; then in single figures frequently till early May, but 10 at Ħas-Saptan on 22 Mar. Up to 5 in summer from a few suitable sites suggesting breeding. In autumn 1-4 almost daily from late Sep to mid-Nov, then 1-3 on a few days till end of year.
1992: 14 sightings of 1-3 in Jan-Mar and 25 sightings of 1-3 from 8 Apr to 30 May. 1 male on 19 Jun and 14 sightings of 1-3 in Jul and Aug. 4 on 9th and 2 on 27th and 30 Sep. On autumn passage single to medium double figures almost daily from 10 Oct to end of the year, max 50+ roosting at Birkirkara on 7 Nov.

Goldfinch *Carduelis carduelis* Gardell

1990: 1 at Binġemma on 22nd and 4 at Wied Żembaq on 28 Jul. In autumn 7 on 31 Oct, then almost daily from 7 Nov to end of year; usually up to 12 but 25 at Dwejra (Malta) on 4th, 22 at Pembroke on 13th and 30+ at Buskett on 17th, all in Dec.
1991: 1-6 at Buskett from 6-20 Jan, 1-3 on 5 dates from 10 Feb to 1 Mar and 1-4 on 8 dates from 14 Apr to 30 May. 1 on 3 Aug; 2 on 15th and 1 on 21 Sep and singles on 26-27 Oct and 21 Nov.
1992: Singles on 19 Mar, 8 Apr, 11 Jul and 9-11 Sep. Then 4 at Qawra on 15 Nov, 5+ at Għadira on 1st and 3 at Lunzjata on 31 Dec.

Siskin *Carduelis spinus* Ekru

1990: On most days from 6 Oct to 18 Nov when usually up to 8, but 50+ at Mġarr (Malta) and 30 at Għadira on 31 Oct. Again almost daily from 28 Nov to 30 Dec when mostly up to 6, but 30+ at Mtaħleb on 29 Dec.
1991: 1-4 on most days from 4 Jan to 9 Feb, but max of 80 on 30 Jan (no site given). 1-2 at Buskett on a few days from late Jun to mid-Aug and 1 at Chadwick Lakes on 20 Jul. In autumn singles at Għadira on 18-19th and 22 Oct.
1992: Singles at Rabat on 17 Oct and 15 Dec.

Linnet *Carduelis cannabina* Ġojjin

1990: Single figures on a few days in Jan-Feb, then on most days in Mar-Apr with a peak from mid-late Mar; highest 20 on 13th and 50 on 23rd, both at Il-Qaws, otherwise 1-10. Singles on a few days in May and 1-2 at Għadira in Aug-Sep. First autumn sightings on 30 Sep and 6 Oct, then daily from 13th onwards. In single to double figures with a peak from mid-Oct to early Nov (max of 50 at Buskett on 25 Oct). Higher numbers more frequent in Dec with max of 60 at Wied il-Luq on 9th and 50 at Binġemma on 30th.
1991: In single to double figures of up to 60 from Jan to late Mar, but 120 at Dwejra (Malta) on 13 Jan. Then 1-3 regularly till early May and 1 on 21 May, with occassional sightings in summer. Main autumn migration from 13 Oct to 30 Nov with no clear peak. Highest 15 at Munxar on 2 Nov, otherwise 1-10. A few sightings of singles in Dec.

1992: Single figures on 10 dates in Jan-Mar to 15th, then single to low double figures on most days from 15 Mar to 2 May, but 92+ on 19 Mar. Singles on 3rd and 19 Jun and 3 on 29 Aug. In varying numbers daily from 15 Oct to end of the year, max 300+ at Buskett on 22 Oct and 200+ at Buskett on 21 Nov and at Floriana on 21 Dec.

Crossbill *Loxia curvirostra* Kruċjat

1990: An irruption occured in summer with first sightings on 24 Jun at Buskett. Highest total counted was of 52 on 5 Jul but numbers rapidly dwindled to 3 by 11 Jul due to trapping and shooting. Frequent sightings from various other localities till early Sep; mostly 1-6 but 8 at Għadira on 2nd and 7 at Binġemma on 15 Aug. Then 1 on 20 Sep and 1-2 on 7 dates from 17 Oct to 21 Nov, but 7 at Għajn Tuffieħa on 14 Nov.
1991: Singles at Rabat on 28 Jan and 1 Aug.
1992: 1 at Għadira on 15 Jun.

Trumpeter Finch *Bucanetes githaginea* Trumbettier

1992: 1 at Mtaħleb on 27 Mar.

Hawfinch *Coccothraustes coccothraustes* Taż-Żebbuġ

1990: Almost daily in autumn from 11 Oct to 1 Nov when mostly 1-3 but 15 at Mtaħleb on 16th and an influx on 28 Oct, with 50+ at Buskett, 40 at Dwejra (Malta) and 10 at Rabat. 2 on 7th and 1 on 17 Nov.
1991: Singles at Qammieħ on 6 Jan and at Salina on 16 Apr.
1992: 1 on 12 Apr at San Anton. 1-4 on 4 days from 10 Oct to 4 Nov.

Scarlet Rosefinch *Carpodacus erythrinus* Bumunqar

1991: Singles at Rabat on 27 Mar and at Xemxija on 27 Sep.

Ortolan Bunting *Emberiza hortulana* Ortolan

1990: All sightings of singles: at Qammieħ on 29 Mar; at Dwejra (Malta) on 3rd, at Fomm Ir-Riħ on 5th and at Selmun on 23 Apr.

Rustic Bunting *Emberiza rustica* Durrajsa Qastnija

1990: 1 at Lunzjata on 16 Oct.
1991: 2 at Lunzjata on 9 Nov.
1992: 1 male at Rabat on 21 Oct.

Little Bunting *Emberiza pusilla* Durrajsa Qerqnija

1990: 1 at Lunzjata on 5 Oct.
1991: Singles at Għadira on 8th and 21 Oct.
1992: 1 at Għadira on 10 Oct.

Reed Bunting *Emberiza schoeniclus* Durrajsa tal-Qasab

1990: Singles at Għadira from Jan to 9 Mar, but 2 on 11th and 24 Feb. In autumn 1-4 almost daily at Għadira from 24 Oct to 10 Dec (peak in early Nov) and 9 sightings of 1-2 elswhere, mainly at Lunzjata, from 24 Oct to 20 Nov.
1991: Singles at Għadira on 3rd and 18 Jan; then in autumn 1-2 on most days from 31 Oct to 10 Dec; all at Għadira, except for 3 sightings.
1992: 1 at Għadira from 26 Feb to 3 Mar. In autumn 1-3 birds recorded on most days from 27 Oct to 7 Dec, with most at Għadira.

Corn Bunting *Miliaria calandra* Durrajsa

1990-92: Present throughout the year on the three main islands. Mostly in single figures but higher numbers in summer and autumn. Migrants most evident in Sep and Oct when usually in double figures. Very localised during breeding season.

RINGING REPORT FOR 1990-93

Joe Sultana, Charles Gauci & Mark Gauci

This report covers the ringing activities of the Valletta Bird Ringing Scheme, run by the Malta Ornithological Society, for the years 1990-93.

Table 1
Ringing totals for years 1990-1993

Year	No. of birds	No. of species
1990*	17,321	114
1991	16,281	106
1992	14,671	97
1993	16,966	102
Grand Total 1965-93	267,263	172(+2 hybrids)

*Record year for the largest number of birds ringed since the first year of ringing in1965

Nine new species, namely **Garganey** *Anas querquedula*, **Honey Buzzard** *Pernis apivorus*, **Merlin** *Falco columbarius*, **Corncrake** *Crex crex*, **Grey Plover** *Pluvialis squatarola*, **Blyth's Reed Warbler** *Acrocephalus dumetorum* (2 birds), **Radde's Warbler** *Phylloscopus schwarzi*, **Crossbill** *Loxia curvirostra* (25 birds, all in 1990 during an irruption in June and July) and **Cirl Bunting** *Emberiza cirlus*, were added to the ringing list. During the period under review a number of very scarce migrants or vagrants was also ringed. These included the 2nd **Rock Pipit** *Anthus petrosus*, the 8th **Rufous Bush Chat** *Cercotrichas galactotes*, the 6th **Grasshopper Warbler** *Locustella naevia* and the 3rd **Melodious Warbler** *Hippolais polyglotta*. 3 **Semi-collared Flycatchers** *Ficedula semitorquata*, 2 **Scarlet Rosefinches** *Carpodacus erythrinus* and 3 **Little Buntings** *Emberiza pusilla* brought their totals to 10, 6 and 7 respectively.

Constant effort ringing at the Ghadira Nature Reserve was continued during these four years, with good results being reflected in the number of birds ringed and retrapped. Most of the waders figuring in the list have been ringed there. In 1990 the Scheme started taking part in the Italian project "Piccole Isole". This project is aimed at monitoring the important role of small islands in the Central Mediterranean during spring migration. Ghadira was used in the first year, but subsequently enough ringers were found to man Comino, where for a whole month (16 April - 15 May) the ringing site is manned daily from dawn to dusk. From 1991 to 1993 the ringing totals resulting from this project were of 1441, 1717 and 2119 respectively. Annual visits to Filfla continued also to be organised to monitor the populations of the **Storm Petrel** *Hydrobates pelagicus* and the **Yellow-legged Gull** *Larus cachinnans*. In 1990 one of the retrapped Storm Petrels had been ringed as an adult in 1969. The 237 Yellow-legged Gull chicks were ringed on the islet during the four years, yielding a recovery in Sicily a few days after fledging.

Table 2
The top ten species ringed for the years 1990-1993

1990		1991		1992		1993	
Robin	4718	Robin	2195	Robin	2826	Swallow	1952
Chiffchaff	1603	Spanish Sparrow	1714	Spanish Sparrow	1405	Robin	1903
Blackcap	1173	Blackcap	1196	Garden Warbler	1071	Spanish Sparrow	1552
Spanish Sparrow	1163	Chiffchaff	1096	Chiffchaff	1041	Garden Warbler	1533
Swallow	1062	Swallow	995	Sardinian Warbler	785	Chiffchaff	1037
Sardinian Warbler	892	Garden Warbler	913	Blackcap	504	House Martin	860
Storm Petrel	574	Sand Martin	884	Swallow	503	Blackcap	611
Fan-tailed Warbler	557	House Martin	875	Willow Warbler	490	Wood Warbler	604
Garden Warbler	513	Sardinian Warbler	873	White Wagtail	407	Sardinian Warbler	579
Wood Warbler	484	Willow Warbler	533	Fan-tailed Warbler	370	Yellow Wagtail	552

Table 3
The top fifteen species ringed for the years 1965-1993

Robin	42,838
Chifchaff	27,721
Swallow	23,086
Spanish Sparrow	19,681
Storm Petrel	16,790
Sardinian Warbler	14,875
Blackcap	12,172
Garden Warbler	11,607
Sand Martin	10,180
House Martin	8212
Subalpine Warbler	6693
Wood Warbler	6336
Fan-tailed Warbler	6251
Willow Warbler	6041
Yellow Wagtail	3811

Valletta-ringed birds recovered abroad 1990-1993

75 recoveries of 25 species ringed in Malta were reported during the four-year period 1990-93. 23 (of19 species) of these were reported from abroad. Most interesting are a **Black-necked Grebe** *Podiceps nigricollis* ringed at Għadira and found dead at Karobelnoye Lake in former USSR and a **Little Stint** *Calidris minuta,* also from Għadira, controlled in Senegal. Two **Sand Martins** *Riparia riparia* brought the number of foreign recoveries of this species to 19; the one in Scotland is our 3rd in the United Kingdom and the other in Hungary is also our 3rd from that country. Two **Swallows** *Hirundo rustica,* one each in Hungary and France, brought the total recoveries of this species abroad to 41. The **Robin** *Erithacus rubecula* always figures in the foreign recoveries; the one recovered in Poland is our 1st in that country and our 28th recovery abroad. The Scheme's first foreign recovery of a **Bluethroat** *Luscinia svecica* turned up in the Czech Republic. Two **Blackcaps** *Sylvia atricapilla* our 2nd in England and our 2nd in Hungary respectively, also figure in the list. The **Chiffchaff** *Phylloscopus collybita* recovered in Denmark is our 1st for that country and our most northern recovery for this species.

Foreign-ringed birds recovered in Malta 1990-1993

41 foreign-ringed birds of 27 species have been recovered in Malta during the four years under review. A **Greylag Goose** *Anser anser* from Poland, a **Red Kite** *Milvus milvus* from Germany, a **Peregrine** *Falco peregrinus* from Finland and a **Penduline Tit** *Remiz pendulinus* from Germany are all firsts, no birds of these species having been previously recorded in Malta. Amongst the regular ones one finds the 7th **Cormorant** *Phalacrocorax carbo* from Denmark, the 6th **Honey Buzzard** *Pernis apivorus* from Finland, the 4th **Marsh Harrier** *Circus aeruginosus* from Finland, the 14th and 15th **Osprey** *Pandion haliaetus* from Sweden, the 8th **Great Skua** *Stercorarius skua* from Scotland, the 3rd **Slender-billed Gull** *Larus genei* from Ukraine, and the 12th **Linnet** *Carduelis cannabina* from Hungary. First-timers from countries include a **Ringed Plover** *Charadrius hiaticula* from Nigeria, two **Willow Warblers** *Phylloscopus trochilus* from Sweden and two **Greenfinches** *Carduelis chloris* from Hungary. The 2 recoveries of **Turtle Dove** *Streptopelia turtur* and the 4 of **Sand Martin** *Riparia riparia* have pushed up the number of recoveries of these species to 27 and 34 respectively. Other interesting recoveries include our 2nd **Little Ringed Plover** *Charadrius dubius* from Germany, our 2nd **Lesser Black-backed Gull** *Larus fuscus* from Denmark and our 2nd and 3rd **Sedge Warblers** *Acrocephalus schoenobaenus* from Finland.

During the 1990-1993 period the members who held a ringing licence were John Attard Montalto, John Borg, Denis Cachia, Richard Cachia -Zammit, Victor Cilia, Charles Coleiro, Raymond Galea, Charles Gauci, Mark Gauci, Mario V. Gauci, Brian K. German, John Grech, Manwel Mallia, Joseph M. Mangion and Joe Sultana. John Middleton, a BTO ringer, also helped in ringing during his regular bi-annual visits to Malta. C. Gauci - the Ringing Secretary - assisted by M. Gauci, has been responsible for the compilation of the ringing data and for the bi-monthly ringing newsletter.

BIRDS RINGED IN 1990-93

Euring Code No.	Species	Ringed 1990	Ringed 1991	Ringed 1992	Ringed 1993	Total ringed 1965-1993
00070	Little Grebe *Tachybaptus ruficollis*	0	0	0	0	1
00120	Black-necked Grebe *Podiceps nigricollis.*	1	1	0	0	13
00360	Cory's Shearwater *Calonectris diomedea*	84	51	102	43	2201
00460	Mediterranean Shearwater *Puffinus yelkouan.*	7	14	16	12	570
00520	Storm Petrel *Hydrobates pelagicus*	574	420	340	53	16,790
00980	Little Bittern *Ixobrychus minutus.*	5	6	3	1	65
01040	Night Heron *Nycticorax nycticorax.*	1	1	1	0	13
01080	Squacco Heron *Ardeola ralloides*	0	0	0	0	2
01190	Little Egret *Egretta garzetta.*	0	0	0	0	1
01840	Mallard *Anas platyrhynchos*	0	0	0	1	2
01910	Garganey *Anas querquedula.*	0	1	0	0	1
02310	Honey Buzzard *Pernis apivorus*	0	0	0	1	1
03040	Kestrel *Falco tinnunculus...*	1	2	0	1	13
03090	Merlin *Falco columbarius..*	1	0	0	0	1
03100	Hobby *Falco subbuteo*	0	0	0	0	1
03700	Quail *Coturnix coturnix.*	2	2	2	2	18
04070	Water Rail *Rallus aquaticus.*	5	6	7	9	100
04080	Spotted Crake *Porzana porzana.*	4	1	1	2	25
04100	Little Crake *Porzana parva.*	1	2	1	0	12
04110	Baillon's Crake *Porzana pusilla..*	0	0	1	0	2
04210	Corncrake *Crex crex..*	0	1	0	0	1
04240	Moorhen *Gallinula chloropus...*	49	27	9	12	243
04290	Coot *Fulica atra..*	1	4	1	0	12
04590	Stone Curlew *Burhinus oedicnemus...*	0	0	0	0	1
04690	Little Ringed Plover *Charadrius dubius..*	24	21	16	12	150
04700	Ringed Plover *Charadrius hiaticula....*	5	9	6	4	35
04770	Kentish Plover *Charadrius alexandrinus..*	0	0	0	0	3
04860	Grey Plover *Pluvialis squatarola.....*	1	0	0	0	1
04930	Lapwing *Vanellus vanellus....*	0	0	0	0	1
05010	Little Stint *Calidris minuta.....*	149	210	213	170	1491
05020	Temminck's Stint *Calidris temminckii.....*	4	0	2	0	47
05090	Curlew Sandpiper *Calidris ferruginea.....*	5	23	3	8	92
05120	Dunlin *Calidris alpina.....*	17	22	26	21	172
05170	Ruff *Philomachus pugnax.....*	8	4	2	1	60
05180	Jack Snipe *Lymnocryptes minimus.....*	1	2	0	0	21
05190	Snipe *Gallinago gallinago.....*	14	5	10	1	98
05200	Great Snipe *Gallinago media....*	2	0	0	0	10
05290	Woodcock *Scolopax rusticola.....*	3	0	1	0	5
05380	Whimbrel *Numenius phaeopus.....*	0	0	0	0	1
05450	Spotted Redshank *Tringa erythropus.....*	0	0	0	0	2
05460	Redshank *Tringa totanus.....*	7	1	4	1	26
05470	Marsh Sandpiper *Tringa stagnatilis.....*	0	0	0	0	1
05480	Greenshank *Tringa nebularia....*	0	0	0	0	3
05530	Green Sandpiper *Tringa ochropus.....*	2	2	2	2	31
05540	Wood Sandpiper *Tringa glareola.....*	11	5	7	8	168
05560	Common Sandpiper *Actitis hypoleucos.....*	66	30	48	51	481
05610	Turnstone *Arenaria interpres.....*	1	0	0	2	6
05750	Mediterranean Gull *Larus melanocephalus.*	1	0	0	0	3
05820	Black-headed Gull *Larus ridibundus.*	0	0	0	0	1

05850	Slender-billed Gull *Larus genei*...	0	0	0	0	1
05926	Yellow-legged Gull *Larus cachinnans*	59	63	46	71	597
06110	Sandwich Tern *Sterna sandvicensis*	0	0	0	0	1
06280	White-winged Black Tern *Chlidonias leucopterus*	0	0	0	0	1
06870	Turtle Dove *Streptopelia turtur.*	3	2	6	12	70
07240	Cuckoo *Cuculus canorus.*	0	1	3	5	34
07350	Barn Owl *Tyto alba*..	0	0	0	0	1
07390	Scops Owl *Otus scops*..	10	7	9	5	146
07680	Short-eared Owl *Asio flammeus.*	0	0	0	1	3
07780	Nightjar *Caprimulgus europaeus*	3	4	7	5	33
07950	Swift *Apus apus*	1	0	3	5	28
08310	Kingfisher *Alcedo atthis.*	26	22	20	19	228
08460	Hoopoe *Upupa epops*	1	5	0	8	33
08480	Wryneck *Jynx torquilla*	29	40	21	39	551
09680	Short-toed Lark *Calandrella brachydactyla*	8	87	17	1	266
09740	Wood Lark *Lullula arborea*	0	0	0	0	2
09760	Skylark *Alauda arvensis.*	0	3	0	0	31
09810	Sand Martin *Riparia riparia.*	347	884	208	550	3811
09920	Swallow *Hirundo rustica*	1026	995	503	1952	23086
09950	Red-rumped Swallow *Hirundo daurica.*	132	5	7	3	85
10010	House Martin *Delichon urbica.*	451	875	311	860	8212
10020	Richard's Pipit *Anthus novaeseelandiae.*	0	0	0	0	1
10050	Tawny Pipit *Anthus campestris*..	0	0	0	1	11
10080	Olive-backed Pipit *Anthus hodgsoni*..	0	0	0	0	3
10090	Tree Pipit *Anthus trivialis*..	65	83	37	78	1472
10110	Meadow Pipit *Anthus pratensis*..	77	84	329	388	1948
10120	Red-throated Pipit *Anthus cervinus*...	0	4	0	2	71
10140	Water Pipit *Anthus spinoletta*..	0	0	0	0	14
10142	Rock Pipit *Anthus petrosus*..	1	0	0	0	2
10170	Yellow Wagtail *Motacilla flava.*	64	157	208	554	3811
10190	Grey Wagtail *Motacilla cinerea.*	12	9	23	11	663
10200	White Wagtail *Motacilla alba.*	25	27	407	27	1202
10660	Wren *Troglodytes troglodytes*..	2	0	2	1	24
10840	Dunnock *Prunella modularis.*	292	121	65	89	2336
10950	Rufous Bush Chat *Cercotrichas galactotes*...	0	1	0	0	8
10990	Robin *Erithacus rubecula.*	4718	2195	2826	1903	42,838
11030	Thrush Nightingale *Luscinia luscinia*..	0	0	0	0	5
11040	Nightingale *Luscinia megarhynchos*..	75	118	116	140	2048
11060	Bluethroat *Luscinia svecica*..	13	10	10	8	131
11210	Black Redstart *Phoenicurus ochruros*	29	21	5	29	330
11220	Redstart *Phoenicurus phoenicurus.*	145	164	178	111	2725
11370	Whinchat *Saxicola rubetra.*	39	105	85	144	863
11390	Stonechat *Saxicola torquata*..	175	138	139	146	2312
11440	Isabelline Wheatear *Oenanthe isabellina.*	0	0	0	0	1
11460	Wheatear *Oenanthe oenanthe.*	3	12	10	13	185
11480	Black-eared Wheatear *Oenanthe hispanica.*	1	0	0	0	5
11620	Rock Thrush *Monticola saxatilis*..	0	0	0	0	3
11660	Blue Rock Thrush *Monticola solitarius*..	8	10	1	4	97
11860	Ring Ouzel *Turdus torquatus*..	0	0	0	0	3
11870	Blackbird *Turdus merula*..	12	5	6	3	228
11980	Fieldfare *Turdus pilaris.*	0	0	0	0	3
12000	Song Thrush *Turdus philomelos.*	106	89	50	94	1332
12010	Redwing *Turdus iliacus.*	0	1	0	0	28
12200	Cetti's Warbler *Cettia cetti.*	111	157	140	117	1620

12260	Fan-tailed Warbler *Cisticola juncidis*..	557	528	370	318	6251
12360	Grasshopper Warbler *Locustella naevia*..	1	0	0	0	6
12370	River Warbler *Locustella fluviatilis*...	0	0	0	0	2
12380	Savi's Warbler *Locustella luscinioides*.	3	3	6	4	54
12410	Moustached Warbler *Acrocephalus melanopogon*.	1	0	2	4	109
12430	Sedge Warbler *Acrocephalus schoenobaenus*.	185	81	145	227	2405
12470	Paddyfield Warbler *Acrocephalus agricola*.	0	0	0	0	1
12480	Blyth's Reed warbler *Acrocephalus dumetorum*.	1	0	1	0	2
12500	Marsh Warbler *Acrocephalus palustris*...	10	5	3	0	40
12510	Reed Warbler *Acrocephalus scirpaceus*	90	179	97	107	1925
12530	Great Reed Warbler *Acrocephalus arundinaceus*..	94	62	61	70	1283
12550	Olivaceous Warbler *Hippolais pallida*..	0	0	0	0	3
l2590	Icterine Warbler *Hippolais icterina*..	66	127	183	228	1606
12600	Melodious Warbler *Hippolais polyglotta*..	0	1	0	0	3
12620	Dartford Warbler *Sylvia undata*.	0	0	0	0	38
12640	Spectacled Warbler *Sylvia conspicillata*.	17	21	18	5	1320
12650	Subalpine Warbler *Sylvia cantillans*.	339	449	306	538	6693
12670	Sardinian Warbler *Sylvia melanocephala*..	892	873	785	679	14,875
12690	Rüppell's Warbler *Sylvia rueppelli*.	0	0	0	0	2
12720	Orphean Warbler *Sylvia hortensis*..	0	0	0	0	4
12730	Barred Warbler *Sylvia nisoria*.	0	0	0	0	1
12740	Lesser Whitethroat *Sylvia curruca*.	3	1	0	1	58
12750	Whitethroat *Sylvia communis*.	69	157	243	426	2595
12760	Garden Warbler *Sylvia borin*.	513	913	1071	1533	11,607
12770	Blackcap *Sylvia atricapilla*.	1173	1196	504	611	12,172
12950	Arctic Warbler *Phylloscopus borealis*..	0	0	0	0	3
12980	Pallas's Warbler *Phylloscopus proregulus*..	0	0	0	0	1
13000	Yellow-browed Warbler *Phylloscopus inornatus*..	3	1	2	0	21
13010	Radde's Warbler *Phylloscopus schwarzi*.	1	0	0	0	1
13070	Bonelli's Warbler *Phylloscopus bonelli*.	1	7	7	2	141
13080	Wood Warbler *Phylloscopus sibilatrix*.	484	296	332	604	6336
13110	Chiffchaff *Phylloscopus collybita*.	1603	1095	1041	1037	27,721
13120	Willow Warbler *Phylloscopus trochilus*.	287	533	490	318	6041
13140	Goldcrest *Regulus regulus*.	38	3	118	26	422
13150	Firecrest *Regulus ignicapillus*..	12	8	32	7	403
13350	Spotted Flycatcher *Muscicapa striata*.	162	106	191	257	1901
13430	Red-breasted Flycatcher *Ficedula parva*.	5	7	4	1	82
13470	Semi-collared Flycatcher *Ficedula semitorquata*.	0	0	2	1	10
13480	Collared Flycatcher *Ficedula albicollis*.	45	13	45	10	415
13490	Pied Flycatcher *Ficedula hypoleuca*.	157	201	238	319	2966
14900	Penduline Tit *Remiz pendulinus*.	38	12	1	6	95
15080	Golden Oriole *Oriolus oriolus*.	18	5	45	43	292
15150	Red-backed Shrike *Lanius collurio*..	2	4	2	7	115
15230	Woodchat Shrike *Lanius senator*	11	47	49	60	333
15820	Starling *Sturnus vulgaris*..	0	0	3	2	101
15920	Spanish Sparrow *Passer hispaniolensis*..	1163	1714	1405	1552	19,681
15980	Tree Sparrow *Passer montanus*.	79	126	141	129	912
16330	Red-eyed Vireo *Vireo olivaceus*...	0	0	0	0	1
16360	Chaffinch *Fringilla coelebs*..	96	62	52	40	917
16380	Brambling *Fringilla montifringilla*..	1	1	0	2	8
16400	Serin *Serinus serinus*..	5	11	0	3	309
16490	Greenfinch *Carduelis chloris*..	27	21	35	13	381
16530	Goldfinch *Carduelis carduelis*..	1	2	0	0	19
16540	Siskin *Carduelis spinus*.	2	1	0	0	11

16600	Linnet *Carduelis cannabina.*	7	2	0	1	922
16660	Crossbill *Loxia curvirostra..*	25	0	0	0	25
16790	Scarlet Rosefinch *Carpodacus erythrinus..*	0	1	0	1	6
17170	Hawfinch *Coccothraustes coccothraustes..*	0	0	0	1	3
18470	Lapland Bunting *Calcarius lapponica.*	0	0	0	0	1
18570	Yellowhammer *Emberiza citrinella.*	0	0	0	0	1
18580	Cirl Bunting *Emberiza cirlus.*	0	0	0	1	1
18660	Ortolan Bunting *Emberiza hortulana.*	0	0	0	0	2
18680	Cretzschmar's Bunting *Emberiza caesia.*	0	0	0	0	1
18730	Rustic Bunting *Emberiza rustica*	1	2	2	4	17
18740	Little Bunting *Emberiza pusilla.*	1	1	1	0	7
18750	Chestnut Bunting *Emberiza rutila..*	0	0	0	0	1
18760	Yellow-breasted Bunting *Emberiza aureola..*	0	0	0	0	1
18770	Reed Bunting *Emberiza schoeniclus.*	9	3	12	8	229
18820	Corn Bunting *Miliaria calandra.*	14	21	8	5	428
	Swallow x House Martin *H. rustica* x *D. urbica..*	0	1	0	0	2
	Tree Sparrow x Spanish Sparrow *P. montanus* x *P. hispaniolensis...*	0	1	0	0	2
	Totals	**17,321**	**16,281**	**14,671**	**16,966**	**267,263**
	Species	**114**	**106**	**97**	**102**	**172**

RINGING RECOVERIES

Key to symbols and terms used in the recovery list

Arrangement of entry
Recoveries are arranged by species, and within species usually by date of the recovery letter.
Ringing details are given on the first line and recovery data on the second.

Ring number: when this is in italics the ring has been returned and verified.

Age code
1 = pullus; young bird ringed in the nest. A number in brackets beside this age code indicates brood size.
2 = fully grown; year of hatching quite unknown.
3 = definitely hatched during current calendar year.
3J = as in 3, but bird still partly or totally in juvenile body plumage.
4 = hatched before current calendar year - exact year unknown.
5 = definitely hatched during last calendar year.

Sex: **M** = male; **F**= female.

Date of recovery
Where this is unknown the date of the reporting letter is given instead and is shown in brackets. A 00 in the date indicates that the exact day or month are unknown.

Manner of recovery
v = caught or trapped, and released with ring (controlled)
+ = shot or killed by man
x = found dead or dying
xA = found long dead
( ) = caught or trapped alive and not released, or released but with ring removed.
B = breeding when recovered
C = recovered at colony
/?/ = manner of recovery unknown.

This section deals with 75 recoveries of 25 species reported during 1990-92. Only those found at least 5km away from the ringing site are included. The co-ordinates of the localities are given only once, when these are first mentioned.

Black-necked Grebe *Podiceps nigricollis*

FF 01.308	4	17.01.89	Għadira: 35°58'N 14°21'E
	x	18.05.91	Karobelnoye Lake: Mishkirskij District, Kurganskaya, (**former USSR**)

Storm Petrel *Hydrobates pelagicus*

S 4.121	4	24.05.86	Filfla: 35°47'N 14°25'E
	xA	20.02.90	Côte Sauvage: 45°46'N 01°08'W (LaTremblade), **France**

Little Stint *Calidris minuta*

S 8.880	4	22.08.92	Għadira
	v	19.11.92	Djoudj: 16°25'N 16°18'E nr St. Louis, **Senegal**

Common Sandpiper *Actitis hypoleucos*

BV 0.449	3	21.08.89	Għadira
	x	c.00.09.91	Siracusa: 37°03'N 15°00'E (Sicily) **Italy**

Yellow-legged Gull *Larus cachinnans*

GP 27.685	1	09.06.82	Filfla
	+	c.20.05.91	Salina: 35°55'N 14°25'E
GG 0.477	1	01.06.92	Filfla
	x	27.06.92	Simeto: 37°24'N 09°06'E Catania (Sicily), **Italy**

Kingfisher *Alcedo atthis*

SA 44.735	2F	17.09.85	Għadira
	+	00.11.85	Mosta: 35°54'N 14°24'E
SB 26.159	2	28.10.91	Lunzjata Valley: 36°03'N 14°14'E Gozo
	v	15.11.91	Xemxija: 35°57'N 14°23'E

Wryneck *Jynx torquilla*

B 09.942	2	13.10.90	Buskett: 35°51'N 14°25'E
	v	06.11.90	Ramla Bay: 36°04'N 14°17'E Gozo

Sand Martin *Riparia riparia*

76.024	4	10.04.90	Ramla Valley: 36°03N 14°17'E
	vBC=F	15.07.90	Mintlaw: 57°32'N 02°00'W (Grampian), **Scotland**
92.856	4	15.05.91	Għadira
	v	17.05.91	Ramla Valley, Gozo
68.723	4	19.04.89	Ramla Valley, Gozo
	v	08.08.91	Keszthely - Fenekpuszta: 46°43'N 17°15'E (Zala), **Hungary**
98.728	3	05.10.92	Ramla Valley, Gozo
	v	07.10.92	Għadira
100.581	4	14.03.92	Għadira
	v	16.03.92	Marsalforn Valley: 36°04'N 14°19'E Gozo

Swallow *Hirundo rustica*

77.442	4M	16.04.90	Salina
	v	18.04.90	Ramla Valley, Gozo
90.586	4M	01.04.91	Għadira
	v	02.04.91	Lunzjata Valley, Gozo
71.573	4	24.04.90	Marsalforn Valley, Gozo
	x	27.04.91	Torokszentiniklos : 47°11'N 20°24'E Jasz-Nagykun-Szolnok,**Hungary**

71.535	4F	23.04.90	Marsalforn Valley, Gozo
	x	24.04.91	at sea, Golf de Lyons: c.43°21'N 04°00'E **France**

The bird landed exhausted with several others on ship; died with a few others.

House Martin *Delichon urbica*

78.428	4F	17.03.91	Lunzjata Valley, Gozo
	v	18.03.91	Għadira

Yellow Wagtail *Motacilla flava*

65.989	4F	31.03.91	Għadira
	v	10.04.91	Miramare, Rimini: 44°02'N 12°17'E (Forlì), **Italy**

Robin *Erithacus rubecula*

69.488	3	17.10.90	Xemxija
	v	20.10.90	Rabat: 35°53'N 14°24'E
73.454	3	31.10.90	Xemxija
	v	30.11.90	Tarġa Gap: 35°55'N 14°24'E
74.861	3	13.10.90	Buskett
	v	21.10.90	Għajn Żejtuna: 35°58'N 14°22'E
79.749	3	18.10.90	Has-Saptan: 35°50'N 14°31'E
	v	25.10.90	Għajn Żejtuna
	v	10.11.90	ibidem
79.834	3	25.10.90	Xemxija
	v	28.10.90	Lunzjata Valley, Gozo
	v	01.11.90	Għajn Żejtuna
80.210	3	14.10.90	Xemxija
	v	17.10.90	ibidem
	v	20.10.90	Buskett
81.109	3	14.10.90	Għajn Żejtuna
	v	26.10.90	Rabat
83.807	3	25.10.90	Buskett
	v	02.11.90	Xemxija
55.436	3	10.10.89	Lunzjata Valley, Gozo
	x(car)	11.03.90	Xemxija
80.444	3	14.10.90	Buskett
	x	21.04.91	Nowa Byslrzyca: 50°17'N 16°34'E (Walbrzyca), **Poland**
83.433	3	20.10.90	Buskett
	v	05.01.91	Għajn Żejtuna
90.401	3	06.10.91	Ramla Valley, Gozo
	v	12.10.91	Buskett
90.931	3	14.10.91	Comino: 36°00'N 14°18'E
	v	20.10.91	Lunzjata Valley, Gozo
98.179	3	26.10.91	Lunzjata Valley, Gozo
	v	30.10.91	Rabat
105.749	3	26.10.92	Għadira
	v	08.12.92	Buskett
104.252	3	06.10.92	Għadira
	v	10.10.92	Binġemma: 35°54'N 14°23'E

85.852	3	03.11.91	Xemxija
	v	23.11.92	Chadwick Lakes: 35°54'N 14°24'E
102.330	3	02.10.92	Binġemma
	v	11.10.92	Buskett
	v	17.10.92	ibidem

Bluethroat *Luscinia svecica*

82.768	3F	28.10.90	Lunzjata Valley, Gozo
	v	01.11.90	Għadira
66.130	3F	26.11.91	Xemxija
	v	01.05.92	Postrekov: 49°28'N 12°48'E Domazlica, **Czech Republic**

Blackbird *Turdus merula*

CX0343	4M	25.10.91	Lunzjata Valley, Gozo
	x	00.10.91	Lampedusa : 35°30'N 12°36'E (Agrigento) **Italy**

Cetti's Warbler *Cettia cetti*

40.954	4M	08.05.86	Xemxija
	v	02.11.90	Rabat
89.120	3F	28.07.91	Buskett
	v	05.01.92	Għadira
	v	17.11.92	ibidem

Fan-tailed Warbler *Cisticola juncidis*

8B.010	3F	19.05.90	Għadira
	v	30.07.90	Wied l-Arkata: 35°55'N 14°25'E
4B.413	3	02.08.90	Dwejra: 36°03'N 14°16'E Gozo
	v	22.07.91	Wied l-Arkata
1E.699	3F	01.09.91	Chadwick Lakes
	v	11.09.91	Għadira
5B.001	3	15.07.90	Buskett
	v	22.09.91	Salina
1E.657	3	11.07.91	Għadira
	v	23.10.91	Lunzjata Valley, Gozo

Reed Warbler *Acrocephalus scirpaceus*

96.856	3	03.10.91	Binġemma
	v	05.10.91	Ramla Valley, Gozo
35.744	4	25.09.84	Lunzjata Valley, Gozo
	v	24.05.92	Busatello: 45°06'N 11°36'E Gazzo Veronese (Verona), **Italy**
99.899	4	16.08.92	Buskett
	v	22.08.92	Ramla Valley, Gozo

Great Reed Warbler *Acrocephalus arundinaceus*

B10.877	6M	26.04.91	Għadira.
	v	01.08.91	Feherto: 47°41'N 17°21'E, Gyor-Sapror-Mosor, **Hungary**

Whitethroat *Sylvia communis*

55.288	4M	22.04.89	Lunzjata Valley, Gozo
	v	27.04.92	Ventotene: 40°07'N 13°25'E (Latina) **Italy**

Garden Warbler *Sylvia borin*

96.650	3	05.10.91	Buskett
	v	14.05.92	Ventotene: 40°07'N 13°25'E (Latina) **Italy**

Blackcap *Sylvia atricapilla*

73.744	F	28.10.89	Buskett
	x (car)	21.08.90	Pest: 47°28'N 19°02'E (Budapest), **Hungary**
86.612	2M	03.12.90	Ħas-Saptan
	v	30.12.90	Binġemma
59.191	2F	26.11.87	Binġemma
	x	13.07.90	Dursley: 51°41'N 02°20'W (Gloucestershire), **England**
77.405	4F	02.04.90	Binġemma
	v	04.01.91	Ħas-Saptan
77.159	4F	06.03.90	Għadira
	v	26.10.91	Lunzjata Valley, Gozo

Chiffchaff *Phylloscopus collybita*

7B.262	4	31.01.90	Għadira
	v	09.03.90	Binġemma
5B.105	2	09.11.90	Ta'Pinu: 36°04'N 14°13'E Gozo
	v	21.11.90	Għadira
8B.270	2	25.10.90	Għadira
	v	02.11.90	Binġemma
1E.196	4	18.03.91	Għadira
	v	28.04.91	Christiansø: 55°19'N 15°12'E (Bornholm), **Denmark**
9B.923	4	09.02.91	Ħas-Saptan
	v	07.03.92	Għadira
1A.941	2	21.11.84	Għadira
	v	12.03.92	Lunzjata Valley, Gozo
9B.191	2	15.11.92	Lunzjata Valley, Gozo
	v	12.12.92	Molentargius: 39°14'N 09°08'E Cagliari (Sardegna) **Italy**

Willow Warbler *Phylloscopus trochilus*

1E.349	4	02.04.91	Għadira
	v	23.06.91	Fichtolberg: 50°01'N 11°51'E Kr. Bayreuth, Oberfranken, **Germany**

Penduline Tit *Remiz pendulinus*

A 8.964	4F	20.11.89	Lunzjata Valley, Gozo
	v	04.02.90	Xemxija
A 8.976	4M	21.11.89	Lunzjata Valley, Gozo
	v	12.02.90	Għadira
6B.312	3F	08.12.89	Lunzjata Valley, Gozo
	v	07.03.90	Xemxija
6B.319	3	09.12.89	Lunzjata Valley, Gozo
	v	08.02.90	Xemxija
	v=4F	19.10.91	Conea: 43°58'N 12°43'E Cattolica (Forli), **Italy**
75.855	4M	14.01.90	Lunzjata Valley, Gozo
	v	11.02.90	Xemxija
77.140	5M	21.02.90	Għadira
	v	07.11.90	Lunzjata Valley, Gozo

Spanish Sparrow *Passer hispaniolensis*

B 09.124	6M	28.01.90	Lunzjata Valley, Gozo
	v	21.03.91	Għadira
B 09.683	3JF	04.08.91	Ramla Valley, Gozo
	v	19.05.92	Manoel Island: 35°54'N 14°30'E

Foreign-ringed birds recovered in Malta

This section deals with 41 foreign ringed birds of 27 species recovered in Malta. The symbols and terms used are the same as those in the previous section.

Cormorant *Phalacrocorax carbo*

Copenhagen	1	30.05.88	Mageøerne : 55°35'N 10°07'E Bogense, Fyn, **Denmark**
231.287	xA	30.05.91	Birkirkara: 35°54'N 14°28'E
Stockholm	1	11.06.90	Hankskären: 58°33'N 17°05'E Arkö (Ostergötland), **Sweden**
9.241.909	+	(02.01.92)	Marsaxlokk: 35°51'N 14°33'E

Greylag Goose *Anser anser*

Gdansk	1	28.05.88	Skaw Andrzej: 51°33'N 17°25'E Strawno, Miliez (Wroclaw), **Poland**
WA 05.205	+	15.12.90	Qawra: 35°57'N 14°26'E

Honey Buzzard *Pernis apivorus*

Helsinki	1	26.07.89	Kullaa: 61°32'N 22°18'E Turku & Pori, **Finland**
D 131.807	+	05.05.92	Rabat: 35°54'N 14°24'E

Red Kite *Milvus milvus*

Hiddensee	1	29.06.90	Stoebritz: 51°51'N 13°43'E Luckan, **Germany**
EA 022.096	+	14.09.90	Xagħra: 36°03'N 14°16'E Gozo

Marsh Harrier *Circus aeruginosus*

Kaunas	1(4/4)	30.06.88	Zuvintas: 54°28'N 23°38'E (Ezeras) Alytus, **Lithuania**
906.008	+	c.15.09.89	Gozo: c.36°03'N 14°17'E
Helsinki	1M	12.07.91	Luopioinen: 61°19'N 24°54'E Häme, **Finland**
H 151.522	+	c15.09.91	Dwejra: 35°54'N 14°23'E
Bologna	4M	15.04.84	Bordonchio: 44°08'N 12°28'E Bellaria Ibea Marina (Forlì) **Italy**
C 08.35	+	(15.09.91)	Malta: c.35°51'N 14°20'E

Ring seen on Stone Curlew *Burhinus oedicnemus* stuffed in a private collection.

Praha	1(4/4)	05.07.84	Hustopece nad Becvou: 49°32'N 17°52'E Prevov, **Czech Republic**
D 70.254	+	10.04.92	Għar Ilma: 36°05'N 14°15'E Gozo

Osprey *Pandion heliaetus*

Stockholm	1(3/3)	06.07.88	Kronobergsmyren: 56°56'N 14°47'E Helgasion(Småland), **Sweden**
9.238.078	+	21.09.88	Salina: 35°57'N 14°25'E
Stockholm	1(3/3)	08.07.88	Söderang: 60°04'N 18°48'E Väddö (Uppland), **Sweden**
9.237.552	+	c15.09.91	Malta: c.35°49'N 14°30'E

Kestrel *Falco tinnunculus*

Hiddensee	1	28.06.90	Hedessen: 51°16'N 13°29'E (Grossenheim), **Germany**
5.125.760	+	19.04.91	Kalafrana: 35°49'N 14°32'E

Peregrine Falcon *Falco peregrinus*

Helsinki	1	07.07.90	Pudasjärvi: (co-ordinates confidential) Oulu, **Finland**
D 97.863	+	31.03.91	Dingli Cliffs: 35°51'N 14°25'E

Little Ringed Plover ***Charadrius dubius***

Helgoland	4M	16.05.90	Schuby: 54°31'N 09°29'E Schleswig-Holstein, **Germany**
81.127.029	v	20.07.91	Għadira: 35°58'N 14°21'E

Ringed Plover ***Charadrius hiaticula***

London	4	12.04.81	Jakara Dam: 12°15'S 08°45'E Kano, **Nigeria**
NS 23.051	+	(30.09.91)	Malta: c.35°55'N 14°25'E

Bird seen stuffed in private collection on date of report.

Great Skua ***Stercorarius skua***

London	1	15.07.74	Foula: 60°08'N 02°05'W (Shetland), **Scotland**
HW 46.324	+	25.09.80	off Qawra: 35°57'N 14°45'E

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

Moskwa	1	12.06.80	Orlov Isles: 46°17'N 31°45'E Tendra Bay (Kehrson Region), **Ukraine**
M 344.347	+	00.12.80	Malta: c.35°53'N 14°30'E

Lesser Black-backed Gull ***Larus fuscus***

Copenhagen	1	09.07.66	Anhalt: 56°42'N 11°34'E **Denmark**
431.482	+	13.01.68	Marsaxlokk: 35°50'N 14°30'E

Turtle Dove ***Streptopelia turtur***

Praha	2M	29.07.85	Sedlec: 48°47'N 16°42'E Nesytpond(Breclav), **Czech Republic**
H 75.886	+	c.30.04.90	Gozo: c.36°03'N 14°17'E
Praha	4M	18.05.86	Kostolná: 48°53'N 17°58'E Trencin, **Czech Republic**
H 76.483	+	16.04.91	Ramla Valley: 36°03'N 14°17'E Gozo

Sand Martin ***Riparia riparia***

Ljubljana	4	12.07.89	Mura: 46°31'N 16°30'E Krizovec,Sveclisce, **Slovenia**
A 397.012	v	11.04.90	Ramla Valley: 36°03'N 14°17"E Gozo
Budapest	3	03.09.89	Ludosko Jezero: 46°06'N 19°56'E Vojvodina, **Croatia**
H 11.111	+	13.05.91	Għajnsielem: 36°01'N 14°19'E Gozo
Budapest	3	06.07.89	Tiszatelek: 48°11'N 21°49'E Sgabeles-Szativar-Bereg, **Hungary**
F 76.938	v	18.05.91	Lunzjata Valley: 36°03'N 14°14'E Gozo
Budapest	3	15.07.91	Simondrnya: 46°46'N 18°33'E Tolna, **Hungary**
L 68.535	v	17.04.92	Lunzjata Valley: 36°03'N 14°14'E Gozo

Swallow ***Hirundo rustica***

Ljubljana	3	10.08.88	Draga: 45°46'N 14°33'E Lj.Barje, **Slovenia**
A 335.332	v	23.04.90	Marsalforn Valley: 36°03'N 14°16'E Gozo
Ljubljana	4	11.09.89	Vrhnika: 45°58'N 14°18'E **Slovenia**
A 413.371	v=F	25.04.90	Binġemma: 35°54'N 14°21'E
Ljubljana	3	30.08.90	Vrhnika: 45°58'N 14°18'E **Slovenia**
A 474.886	v	28.09.90	Għadira: 35°03'N 14°21'E
Ljubljana	3	11.08.90	Bevke: 45°59'N 14°22'E Ljubljansko Barji, **Slovenia**
A 448.816	v	22.04.91	Ramla Valley: 36°04'N 14°17'E Gozo

Sedge Warbler ***Acrocephalus schoenobaenus***

Budapest	3	23.07.89	Keszthely-Fenekpuszta: 46°43'N 17°15'E Zala,**Hungary**
P 41.726	v	09.04.90	Xemxija: 35°57'N 14°23'E St. Paul's Bay
Helsinki	3	28.08.91	Järvenpää: 60°27'N 25°04'E Uusimaa, **Finland**
X 151 753	v	18.04.92	Ramla Valley: 36°04'N 14°17'E Gozo
	v	01.05.92	Ibid.

Helsinki	3	29.07.89	Helsinki: 60°12'N 25°01'E Helsingfors, Uusimaa, **Finland**
V 673.942	v	24.05.92	Xemxija: 35°57'N 14°23'E St. Paul's Bay

Reed Warbler *Acrocephalus scirpaceus*

Praha	3	10.08.91	Sedlec: 48°47'N 16°42'E pond Nesyt, Breclav, **Czech Republic**
N 300.540	v	29.09.91	Bingemma: 35°54'N 14°18'E

Garden Warbler *Sylvia borin*

Ljubljana	3	17.08.91	Vrhnika: 45°58'N 14°18'E **Slovenia**
A 553 191	v	18.04.92	Buskett: 35°51'N 14°25'E

Blackcap *Sylvia atricapilla*

Ljubljana	6M	12.07.90	Jarski prod: 46°05'N 14°32'E Ljubljana, **Slovenia**
A 441 759	v	03.11.90	Għajn Żejtuna: 35°58'N 14°22'E Mellieħa

Chiffchaff *Phylloscopus collybita*

Ljubljana	3	15.10.89	Ormoz: 46°25' N 16°10'E **Slovenia**
A 435.791	x	c.15.11.89	Sliema: 35°55'N 14°30'E

Willow Warbler *Phylloscopus trochilus*

Stockholm	3	09.08.91	Handol: 63°15'N 12°27'E Jamtland, **Sweden**
BB 09.527	v	11.10.91	Għadira: 35°58'N 14°21'E
Stockholm	3	29.08.92	Skegsholm: 59°06'N 18°16'E Galo, Sodermanland, **Sweden**
BC 65.167	v	12.10.92	Buskett: 35°51'N 14°25'E

Penduline Tit *Remiz pendulinus*

Hiddensee	3	07.06.88	1km NW of Neukirchen : 51°07'N 12°30'E Borna, **Germany**
91.226.666	v	04.12.90	Xemxija: 35°57'N 14°23'E St. Paul's Bay

Greenfinch *Carduelis chloris*

Budapest	4M	09.07.88	Varpoloto: 47°13'N 18°18'E Veszprem, **Hungary**
V 76.772	( )	15.10.90	Marsascala: 35°52'N 14°34'E
Budapest	5F	16.05.89	Szello: 46°46'N 18°29'E Baranya, **Hungary**
P 00054	( )	21.11.90	Marsascala: 35°52'N 14°34'E

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Il-Merill

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