

# Il-Merill

No.28

1992-1994

*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.*



RSPB

© BirdLife Malta MOS, 1995

Typing: John Borg

Production: Victor Falzon

Printed at Gutenberg Press

**BirdLife Malta MOS**

POBox498 Valletta CMR 01 MALTA

Tel (+356)230684/250229 Fax (+356)225665

## Il-Merill Editorial Board

Charles Gauci (Editor)

John Borg

Joe Sultana

## BirdLife Malta MOS Research Committee

Joe Sultana (Chairperson)

Joseph M Mangion (Secretary)

Charles Gauci (Ringing Secretary)

Mark Gauci (Asst Ringing Secretary)

Caldon Mercieca (Recorder)

John Attard Montalto (Rarities Secretary)

John Borg

Charles Coleiro

Mark A Falzon

Raymond Galea

Manwel Mallia

**Director:** Paul Portelli

**Hon. President:** Joe M Attard

## BirdLife Malta MOS Council 1995

John Grech (President)

John Borg (Secretary)

William Wait (Treasurer)

Desirée Falzon (Asst. Secretary)

Alex Casha

Audrey Chetcuti

Norman Chetcuti

Victor Falzon

Josef Grech

Robert Hewitt

Antoine Vella

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.



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 Huttat 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 Borda 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. Vagliasos). 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. Vagliasos). There are no January-March records.

## Turkey

The country has one small colony in the Marmara Sea. Kasperek & 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. eleonora* 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 (Schmidt 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

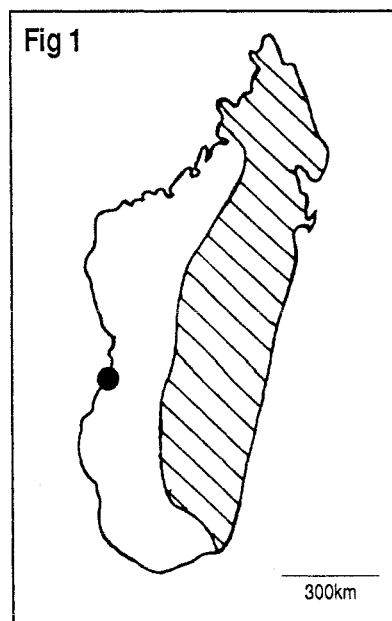
One collected before 1869 (Stresemann 1954)

## 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

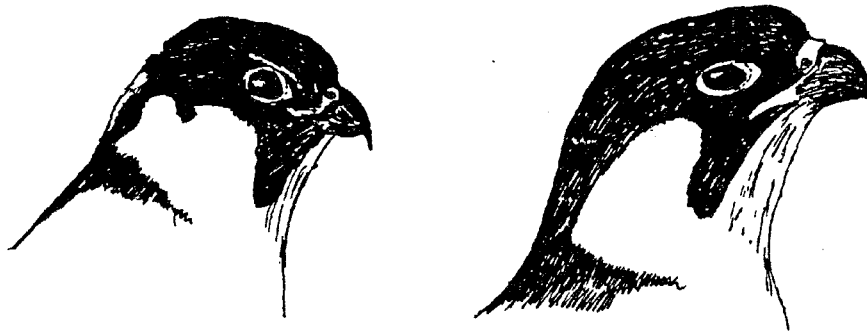
### How do Eleonora's Falcons reach their breeding colonies in spring?

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 plausible value. On the other hand, there 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.)
1 year	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
	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
<b>Total</b>	<b>29 individuals from 3500 nestlings</b>		

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

## Acknowledgements

The authors would like to thank all contributors mentioned in the text and appreciate any comments and future records. Rings for the fieldwork and ringing information for Table 1 were initially supplied by Vogelwarte Helgoland and later by the Hellenic Bird Ringing Centre.

## References

- Allen, F.G. 1973. Observación de Falcon eleonora en el campo de Gibraltar. *Ardeola* 19:13.
- Anonym. 1970-85. Reports of the Malta Orn. Society. *II-Merill* 2:13; 4:8; 5:6; 8:7; 11:7; 11:24; 14:5; 16:4-5; 19:29; 21:29; 22:26; 23:18.
- Anonym. 1971-86. Annual reports of the Cyprus Orn. Society. 1:19; 2:20; 3:17; 4:15; 5:12; 6:13; 7:10; 8:10; 9:10,56; 10:10; 11:12; 12:7; 13:10, 68, 95, 105; 14:9-10,43.
- Araujo, J., Munoz-Cobo, J., & Purroy, F.J. 1977. Las rapaces y aves marinas del archipelago de Cabrera. *Naturalia Hispanica* 12. Publ. del Ministerio de Agricultura. Madrid.
- Archer, G.F. & Goodman, E.M. 1937. The birds of British Somalia and the Gulf of Aden. vol. 1. London.
- Arrigoni Degli Oddi, E. 1904. *Manuale di Ornitologia Italiana*. 2nd part. Milan.
- Ash, J.S. & Miskell, J.E.. 1983. Birds of Somalia, their habitat, status and distribution. *Scopus*. Spec. Suppl. nr. 1:20.
- Bacetti, N., Frugis, S., Mongini, E. & Spina, F. 1981. Rassegna aggiornata sull'avifauna dell'Isola di Montecristo. *Riv. Ital. Orn.* Milano 51: 203.
- Baumgart, W. 1991. Gegenwärtiger Status und Gefährdungsgrad von Greifvögeln und Eulen in Syrien. *Birds of Prey Bulletin* 4 : 126.
- Bernauer, W. 1955. Ornithological observations on the Adriatic coast. *Larus* 9-10: 124.
- Bernis, F. 1980. La migración de las aves en el Estado de Gibraltar. Madrid Universidad Complutense, 474-475.
- Besson, J. 1982. Sejours de Faucon d'Eleonore *Falco eleonora* aux iles d'Hyeres. *Alauda*. 50: 68-69.
- Bijlsma, R.G. 1983. The migration of raptors near Suez, Egypt, autumn 1981. *Sandgrouse* 5: 38.
- Breife, B., Ellegren, H. & Hedenström, A. 1984. Eleonorafalk *Falco eleonora* anträffad på Öland. *Calidris* 13: 142-144.
- Britton, P.L. (Ed.). 1980. Birds of East Africa: their habitat, status and distribution. Nairobi. p 38.
- Cade, T. 1982. The falcons of the world. London. p 133.
- Cant, G. 1978. Eleonora's Falcon reported wintering in the southern Aegean. *I Pheasants* 15: 28-29.
- Carp, E., & Cheylan, G. 1979. Les observateurs de Faucon d'Eleonore *Falco eleonora* dans le sud de la France. *Nos Oiseaux* 35: 31-35.
- Clark, A.L. 1981. Ecology of the Eleonora's Falcon in Morocco. *Thesis*. Cornell University.
- Christensen, S., Lou, O., Müller, H. & Wohlmuth, H. 1981. The spring migration of raptors in southern Israel and Sinai. *Sandgrouse* 3: 1-42.
- Copleston, A. & Horton, K.W. 1980. Eleonora's Falcon: new to Britain and Ireland. *British Birds* 73: 328-333.
- Cortes, J.E., Finlayson, J.C., Garcia, E.F.J. & Mosquera, M.A.J. 1980. The birds of Gibraltar. Gibraltar Bookshop.
- Delgado, G. & Quillis, V. 1990. New data concerning the migration of Eleonora's Falcon *Falco eleonora*. *Ringling & Migration* 11: 111-112.
- Di Carlo, E.A. 1966. Saggio sul passo primaverile ed estivo-autunnale nelle Isole Tremiti (Mare Adriatico). *Riv. Ital. Orn.* 36: 324-344.
- Dixon, C. 1882. Notes on the birds of the province of Constantine. *Ibis* (4) 6 : 550-579.
- Dolc, J.C. & Dies, N. 1987. El halcon de Eleonor (*Falco eleonora*, Gene) en las islas Columbretes. in Matilla, A. et al. (Eds.). *Contribución al estudio de su medio natural*. Conselleria d'Obres Publiques, Urbanisme i Transports. Generalitat Valenciana. Valencia.
- Dragoumis, P. 1984. Observations in Sifnos. Hellenic Orn. Soc. *Newsletter* 1: 5-10.
- Dovrat, E. 1982. Summary of five years survey of raptor migration at Kafer Kasem. *Torgos* 1: 53-115.
- Ferrer, X. et al. 1986. Historia natural dels Paisos Catalans. *Ocells. Fund. Enciclop. catalans*. Vol 12 : 155-156.
- Foers, R. 1983. *Falco eleonora* at Akrotiri cliffs, Cyprus 1978 study and census. *The Birds of Cyprus*. 9th Birds Report 1978, 82-85.
- Fridrich, C.G. 1905. Naturgeschichte der deutschen Vögel einschliesslich der sämtlichen Vogelarten Europas, Stuttgart. Sprösser & Nägele. p 428.
- Galea, C. & B. Massa. 1985. Notes on the raptor migration across the central Mediterranean. *ICBP Techn. Publ.* 5 : 260.
- Giordano, A. 1991. The migration of birds of prey and storks in the Straits of Messina. *Birds of Prey Bulletin* 4 : 245.
- Goodman, S.M. & Meininger, P.L. 1989. The Birds of Egypt. Oxford University Press, Oxford.
- Hartert, E. 1923. On the birds of Cyrenaica. *Novit. Zool.* 30: 1-32.
- Hein, C., Horst, B. & Kisting, M. 1995. Der Frühlingszug europäischer Großvögel (Greifvögel, Kraniche, Störche) von Tunesien nach Italien. Naturschutzbund Deutschland, Leverkusen (in press).
- Heinzel, H., Fitter, R. & Parslow, J. 1972. The Birds of Britain and Europe, with North Africa and the Middle East. Collins.
- Hernandez, E., Martin, A., Diaz, G., Trujillo, O. & Ascano, M. 1985. Censo y datos sobre la biología del Halcon de Eleonor (*Falco eleonora* Gene 1839) en las islas Canarias. Agosto-Septiembre 1983. *Doñana Acta Vertebrata* 12: 63-73.
- Hjortnaes-Thomson, P. & Jensen, J.V. 1974. Algunas observaciones ornitológicas en Mallorca, Abril 1973. *Ardeola* 20: 263-265.
- Kasperek, M. & Ristow, D. 1986. On the occurrence of Eleonora's Falcon *Falco eleonora* in Turkey. *Zoology of the Middle East* 1: 60-69.
- Kinzelbach, R. & Martens, J. 1965. Zur Kenntnis der Vögel von Karpathos (Südliche Ägäis). *Bonn. Zool. Beitr.* 16: 50-91.
- Klockenhoff, H. & Krapp, F. 1977. Brut- und Zugvögel auf Ostkreta im Frühjahr 1976. *Bonn. Zool. Beitr.* 28: 342.
- Krüper, T. 1864. Beitrag zur Naturgeschichte des Eleonorenfalken *Falco eleonora* Gene. *J. Orn.* 12: 1-23.
- Kumerlovee, H. 1962. Notes on the birds of the Lebanese Republic. *Iraq Natur. Hist. Mus. Pub.* 20/21: 1-80.
- Lamani, F. & Puzanov, V. 1963. Liste e shpendeve qe duhet te jene ne vendin tone por qe nuk jane konstatuar akoma. *Buletin i Univ. S. Hekencat Natyrore* 17: 122-125.

- Laursen, J. 1971. Orientering-Sydjugoslavien. *Danske Fugle* 23: 32-33.
- Mann, C.F. 1977. First record of Eleonora's Falcon in Kenya. *Scopus* 1: 44-45.
- Massa, B. 1978. Observations on Eleonora's Falcon *Falco eleonora* in Sicily and surrounding islets. *Ibis* 120: 531-534.
- Mayol, J. 1976. Estudios sobre el Halcon de Eleonor *Falco eleonora* en las islas Baleares. *Ardeola* 23: 103-136.
- Meinertzhagen, R. 1940. Autumn in Central Morocco. *Ibis* 14: 106-136, 187-234.
- Meyburg, B.U. & Langrand, O. 1985. Evolution, Verbreitung und Status der Greifvögel (Falconiformes) Madagaskars. Proc. Intern. Symp. African Vertebr. Bonn, 193-205.
- Mocci Demartis, A. 1973. Recensement de la colonia de Faucon d'Eleonore *Falco eleonora* de l'île de San Pietro (Sardaigne) *Aluda* 41: 385-402.
- Nankinov, D., Stoyanov, G., Kouzmanov, G. & Todorov, R. 1991. Information sur la situation des rapaces diurnes en Bulgarie. Birds of Prey Bulletin 4 : 299.
- Navarro, V. & Gomes, J.A. 1986. Avifauna de las islas Columbretes. *La Garcilla* 66: 19-21.
- Noeske, A. 1987. Binnenlandvorkommen des Eleonorenfalken *Falco eleonora* während der Heimzug und frühen Brutphase. *Limicola* 1: 91-95.
- Pechuan, L. 1973. Algunas observaciones y capturas en las islas Columbretes. *Ardeola* 19: 56.
- Pineau, J. & Giraud-Audine, M. 1979. Les oiseaux de la peninsula tingitane. Rabat. Institut Scientifique.
- Rajnik, F. 1978. A kormos solyom *Falco eleonora* elso magyarorszagi peldanya. *Aquila* 85: 149 -159.
- Real, J. & Ribas, J. 1985. Status, distribucio i migracio dels rapinyaires diurns (Falconiformes i Accipitriformes) al Valles Occidental i Oriental. El Medi Natural del Valles. I Colloqui de Naturalistes Vallesans. *Annals del C.E.E.M.* No. 1: 151-170.
- Ristow, D., Wink, C. & Wink, M. 1983. Biology of the Eleonora's Falcon *Falco eleonora*: 11. Dependence of hunting behaviour on wind conditions and the related migrant frequencies. *Die Vogelwarte* 32: 7-13.
- Ristow, D., Scharlau, W. & Wink, M. 1978. Biology of the Eleonora's Falcon *Falco eleonora*: 16. Population structure in a breeding colony. Proc. IVth Conf. on Med. Birds of Prey. San Antiocho, Oct 1984. Suppl. Ric. Biol. Selvaggina 12: 301-305.
- Schmidl, D. 1982. The Birds of the Serengeti National Park Tanzania. *B.O.U. Check-List* Nr. 5. London, 47.
- Stresemann, E. 1954. Zur Frage der Wanderungen des Eleonorenfalken. *Vogelwarte* 17: 182-183.
- Stresemann, E. 1956. Bausteine zu einer Ornithologie von Kreta. *J. Orn* 97: 64.
- Terrasse, J.F. 1963. A propos de deux reprises de *Falco eleonora*. *O.R.F.O.* 33: 56-80.
- Thevenot, M., Beaubrun, P. & Bergier, P. 1981. Statut et evolution de Faucon d'Eleonore *Falco eleonora* au Maroc. *Annales du CROP* 1, Aix-en-Provence, 111-115.
- Thevenot, M., Beaubrun, P., Baouab, R. & Bergier, P. 1982. Compte rendu d'Ornithologie Marocaine, année 1981. *Documents de l'Institut Scientifique*, Rabat no 7: 118.
- Thevenot, M., & Beaubrun, P. 1983. Compte rendu d'Ornithologie Marocaine, année 1982. *Documents de l'Institut Scientifique*, Rabat.
- Thiollay, J.M. 1967. Observation sur le Faucon d'Eleonore *Falco eleonora* et quelques autres rapaces des Baleares. *Nos Oiseaux* 29: 29-40.
- Thiollay, J.M. 1974. Observaciones de *Falco eleonora* en el estrecho de Gibraltar. *Ardeola* 20: 349-350.
- Trettau, W. 1971. Ornithologische Beobachtungen auf der Insel Giglio und Ergänzungen zur Vogelwelt der Insel Elba und Capria. *Orn. Mitt.* 13: 101-104.
- Turner, D.A. 1978. Eleonora's Falcon wintering in southern Tanzania. *Scopus* 2: 49-50.
- Urban, E.K. & Brown, L.H. 1971. A checklist of the birds of Ethiopia. Hailee Sellassie I Univ. Press. Addis Abeba.
- Vasic, V., Grubac, B. & Marinkovic, S. 1985. The status of birds of prey in Yugoslavia, with particular reference to Macedonia. *ICBP Tech. Publ.* 5, 1985, 51.
- Walter, W. 1979a. Breeding locations of *Falco eleonora*: A World directory. Univ. of Calif. *Sec. Revised Edition*.
- Walter, W. 1979b. Eleonora's Falcon: adaptation to prey and habitat in a social raptor. Univ. of Chicago Press.
- Welch, G. & Welch, H. 1988. The autumn migration of raptors and other soaring birds across the Bab-el-Mandeb straits. *Sandgrouse* 10: 48.
- Wettstein, V.O. 1938. Die Vogelwelt der Ägäis. *J. Orn.* 86: 9-53.
- Wimpfheimer, D., Bruun, B., Baha el Din, S.M. & Jennings, M.C. 1983. The migration of birds of prey in the northern Red Sea area. The Holy Land Conservation Fund. New York.
- Whitehead, P.F. 1987. Zakynthos, jewel of Greece. *Physis* 39: 65-68.
- Wink, M., Wink, C. & Ristow, D. 1982. Biology of the Eleonora's Falcon (*Falco eleonora*): 10. Breeding success in relation to nest site exposition. *J.Orn.* 123: 401-408.
- Wink, M., Ristow, D. & Wink, C. 1985. Biology of Eleonora's Falcon (*Falco eleonora*):7. Variability of clutch size, egg dimension and egg coloring. *Raptor Research* 19: 8-14.

Dietrich Ristow - Pappelstrasse 35, D-85579, Neubiberg, Germany.