

# The Migration of Raptors through Portugal

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## INTRODUCTION

Portugal is the south-westernmost country of Europe. The scientific study of birds is very recent. The Centre of Studies of Migration and Protection of Birds (CEMPA) has recently completed its *Atlas of Breeding Birds in Portugal* (1984).

The migration of raptors has never been properly studied but there are a few scattered data which this paper seeks to assemble.

## PRESENTATION OF DATA

### A. *Quantification of the number of migrant raptors that breed in Portugal*

The Atlas field work (1978-1984) confirmed that 21 species of diurnal raptors breed in Portugal. *Aegypius monachus*, *Aquila heliaca* and *Falco eleonorae* were not confirmed as breeders during this period; nevertheless, the first two probably do still breed in Portugal in very low numbers.

**Table 1. Migratory status of breeding raptors in Portugal.**

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*Resident or mainly resident*

Black-winged Kite *Elanus caeruleus*  
Griffon Vulture *Gyps fulvus* - but juveniles migrate  
Black Vulture *Aegypius monachus*  
Golden Eagle *Aquila chrysaetos*  
Bonelli's Eagle *Hieraetus fasciatus*  
Peregrine Falcon *Falco peregrinus*

*Partial migrants or mostly so*

Buzzard *Buteo buteo*  
Red Kite *Milvus milvus*  
Marsh Harrier *Circus aeruginosus*  
Hen Harrier *Circus cyaneus*  
Goshawk *Accipiter gentilis*  
Sparrowhawk *Accipiter nisus*  
Imperial Eagle *Aquila heliaca adalberti*  
Kestrel *Falco tinnunculus*  
.../cont'd

*Full migrants which move over a broad front*

Montagu's Harrier *Circus pygargus*  
 Osprey *Pandion haliaetus*  
 Lesser Kestrel *Falco naumanni*  
 Hobby *Falco subbuteo*  
 Eleonora's Falcon *Falco eleonora*

*Full migrants which concentrate at "land bridges"*

Honey Buzzard *Pernis apivorus*  
 Black Kite *Milvus migrans*  
 Egyptian Vulture *Neophron percnopterus*  
 Short-toed Eagle *Circaetus gallicus*  
 Booted Eagle *Hieraetus pennatus*

The population of *Buteo buteo* seems to receive re-enforcements during autumn as is shown through the recoveries of ringed birds (Table 2 & Map 1). Nevertheless, I presume that other individuals, some of them breeders, migrate south.

**Table 2. Raptors ringed in Europe and later shot in Portugal.**

<u>Species</u>	<u>Date of ringing</u>	<u>Place and country</u>	<u>Date of death</u>	<u>Place and region</u>
<u>Pandion haliaetus</u>	5/7/72	S. Hjulö, S	2/ 9/72	Vila Pouca do Campo, BL
" "	24/7/74	North Highlands, GB	19/ 9/74	Sagres, A
" "	11/7/76	Lake Ommeln, S	?/ 8/77	SE Lisboa, ES
<u>Milvus migrans</u>	26/6/77	Tiefenau, DD	16/ 9/77	Sagres, A
<u>Milvus milvus</u>	16/6/64	Erfelden, D	18/ 1/65	Odivelas, BAI
" "	23/6/65	Schönberg, D	6/11/65	Panóias, BAI
" "	7/6/71	Hachenburg Nister, D	5/10/74	Évora, AAI
" "	29/5/78	Schkenditz, DD	5/11/78	Sousel, AAI
" "	3/6/73	Wallendorf, DD	27/11/78	Figueira de Castelo Rodrigo, BA
<u>Falco subbuteo</u>	10/7/68	St. André de Roquelongue, F	25/ 9/68	Sagres, A
<u>Falco naumanni</u>	13/6/65	San Lucar la Mayor, E	5/ 9/65	Benavente, R
<u>Falco tinnunculus</u>	8/6/64	O. Flevoland, NL	?/10/65	Peniche, ES
<u>Falco columbarius</u>	3/7/73	Mosvannstangen, N	7/ 6/74	Rio de Moinhos, BAI
" "	15/7/77	Slatojakk, N	5/10/77	Safara, BAI
<u>Falco peregrinus</u>	13/7/77	Pelkosenniemi, SF	27/ 1/80	Pavia, AAI
<u>Elanus caeruleus</u>	25/5/79	Cheles, E	31/ 8/80	Vimieiro, AAI
<u>Accipiter gentilis</u>	11/7/68	Robleda, E	21/11/77	Casegas, BB
" "	16/6/79	Mte. Castrova, E	2/11/80	Nisa, AAI
<u>Buteo buteo</u>	29/6/77	Nottrask, S	29/12/77	Lagoa de Óbidos, ES
" "	1/7/80	Gransjo, S	26/10/80	Óbidos, ES

**KEY:**

D: Federal Republic of Germany; DD: German Democratic Republic; E: Spain; F: France; GB: Great Britain; N: Norway; NL: Netherlands; S: Sweden; SF:Finland.

A: Algarve; AAI: Alto Alentejo; BA: Beira Alta; BAI: Baixo Alentejo; BB: Beira Baixa; BL: Beira Litoral; ES: Estremadura; R: Ribatejo.

The Osprey population seems also to be increased by a few individuals that winter in Portugal (Table 3 & Map 2).

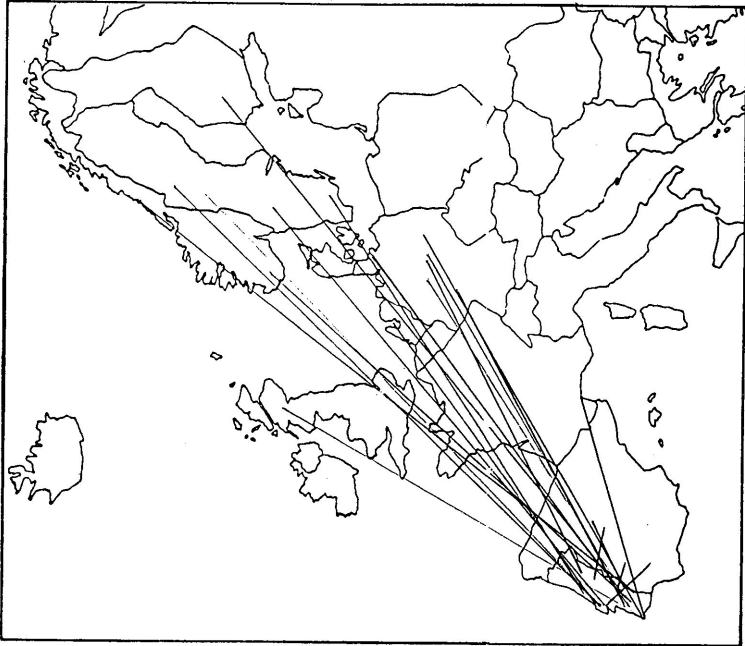
Table 3. Place, wintering periods and passage of *Pandion haliaetus* in Portugal.

<u>No. of individuals</u>	<u>Date</u>	<u>Places</u>	<u>See Map 2</u>	<u>Observer</u>
1	Dec 80 - Mar 81	Ilha do Cavalo (Estuário do Sado)	1	M. V. Abreu
1	27/10/83-26/2/84	Ilha do Cavalo (Estuário do Sado)	1	M. V. Abreu
1/2	Dec 85 - Feb 86	Ilha do Cavalo (Estuário do Sado)	1	M. V. Abreu
1	20/3/81	Barragem de Sta. Ma. de Aguiar	2	M. V. Abreu
1	20/12/83-20/1/84	Açude do Boquilobo	3	F. F. Pereira
1/2	Nov 84 - Feb 85	Açude do Boquilobo	3	F. F. Pereira
1	18/ 1/86- 6/2/86	Barragem do Caia	4	M. V. Abreu
1	16/2/86	Barragem do Maranhão	5	M. V. Abreu
1	21/1/86	Barragem de Odivelas	6	M. V. Abreu
1	20/1/86	Ludo	7	R. S. Guedes
1	20/1/86	Ria de Faro	8	R. S. Guedes
1	7/7/80	Tejo internacional	9	M. V. Abreu
1	16/8/83	Cascais	10	M. V. Abreu
1	8/4/84	Rio Chanca	11	J. P Escudeiro

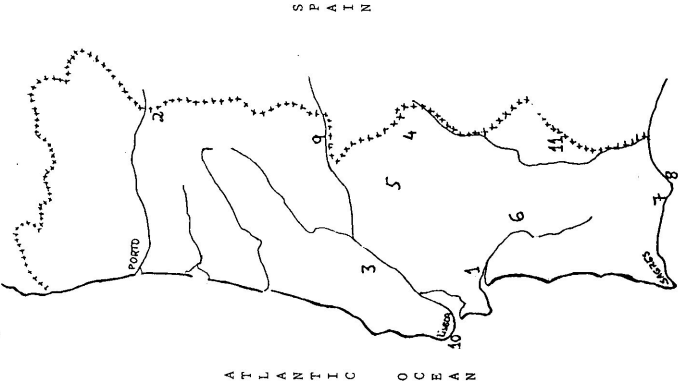
Table 4 gives an estimate of the number of migrant raptors that breed in Portugal.

Table 4. Migrant raptors that breed in Portugal (based on Rufino *et al.*1985).

<u>Full migrants</u>	<u>Pairs</u>	<u>No. migrating</u>
<u>Neophron percnopterus</u>	40 - 60	80 - 120
<u>Hieraaetus pennatus</u>	130 - 150	260 - 300
<u>Circaetus gallicus</u>	80 - 100	160 - 200
<u>Pernis apivorus</u>	5 - 10	10 - 20
<u>Milvus migrans</u>	900 - 1,200	1,800 - 2,400
<u>Pandion haliaetus</u>	2 - 5	4 - 10
<u>Circus pygargus</u>	1,000 - 1,300	2,000 - 2,600
<u>Falco subbuteo</u>	300 - 400	600 - 800
<u>Falco naumanni</u>	300 - 400	600 - 800
	TOTAL	5,514 - 7,250
	AVERAGE	6,382
<u>Partial migrants</u>		
<u>Buteo buteo</u>	2,000 - 3,000	4,000 - 6,000
<u>Milvus milvus</u>	100 - 120	200 - 240
<u>Accipiter gentilis</u>	100 - 120	200 - 240
<u>Accipiter nisus</u>	300 - 400	600 - 800
<u>Circus aeruginosus</u>	30 - 40	60 - 80
<u>Circus cyaneus</u>	5 - 10	10 - 20
<u>Falco tinnunculus</u>	1,000 - 1,500	2,000 - 3,000
	TOTAL	7,070 - 10,380
	AVERAGE	8,725



Map 1. Raptors ringed in Europe and later shot in Portugal (Table 2).



Map 2. Wintering places and passage of Pandion haliaetus (Table 3).

Analysis of Table 4 gives the mean rate of full migrants breeding in Portugal as 6,382 individuals and that of partial migrants also breeding in Portugal as 8,725 individuals. If we consider that half of the partial migrants - 4,362 individuals - really migrate and add these to the full migrants, we obtain an estimated 10,744 raptors that migrate to Portugal in spring to breed. All the partially migrant species shown in Table 1 may overwinter in Portugal, which is why only half of them are treated as migrants.

**Table 5. Observations of spring migration of raptors in the area of the Cape of Sagres or along its northern coast.**

<u>Date</u>	<u>Species</u>	<u>No. of individuals</u>	<u>Place</u>	<u>Observer</u>
26/4/81	<u>Circus pygargus</u>	1	Odeceixe	L. Palma
1/6/81	" "	1	Torre de Aspa	"
8/5/82	" "	1	Cabo Sardão	"
6/5/83	<u>Pernis apivorus</u>	1	Alfambras	"
6/5/83	<u>Circus pygargus</u>	1	Porto Covo	"
7/5/83	<u>Neophron percnopterus</u>	1	Alfambras	"
7/5/83	<u>Milvus migrans</u>	1	Foz do Aljezur	"
8/5/83	<u>Circus pygargus</u>	1	N. of Odeceixe	"

**Table 6. Observations of autumn migration of raptors in the area of the Cape of Sagres or along its northern coast.**

<u>Date</u>	<u>Species</u>	<u>No. of individuals</u>	<u>Place</u>	<u>Observer</u>
10/74	<u>Gyps fulvus</u>	73	Sagres	J. Measures
24/ 8/81	<u>Neophron percnopterus</u>	1 juv.	"	M. V. Abreu
26/ 8/81	<u>Milvus migrans</u>	2	"	"
26/ 8/81	<u>Falco naumanni</u>	1	"	"
30/ 8/81	<u>Neophron percnopterus</u>	3 juv.	"	"
31/ 8/81	<u>Milvus migrans</u>	2	"	"
4/ 9/81	<u>Falco eleonorae</u>	1	Arrifana	L. Palma
12/10/81	<u>Gyps fulvus</u>	11 juv.	Sagres	"
13/10/81	<u>Hieraaetus pennatus</u>	3/4	Vila do Bispo/ Costa	"
11/11/81	<u>Circaetus gallicus</u>	1	Vale da Telha	"
15/ 9/82	<u>Pernis apivorus</u>	1	Sagres	M. V. Abreu
16/ 9/82	<u>Milvus migrans</u>	1	"	"
1/10/83	<u>Pernis apivorus</u>	1	"	L. Palma
1/10/83	<u>Hieraaetus pennatus</u>	1	Cape S. Vicente	"
18/ 8/84	<u>Milvus migrans</u>	6	Sagres	S. M. Lister
18/ 8/84	<u>Circus pygargus</u>	3	"	"
19/ 8/84	" "	2	"	"
25/ 8/84	" "	1	"	"
25/ 8/84	<u>Milvus migrans</u>	3	"	"
26/ 8/84	" "	1	"	"

## B. Cape of Sagres - a migration "land bridge"?

The Cape of Sagres is the south-westernmost corner of Portugal. In this region it is possible to see the passage of migrating flocks of many different species such as *Streptopelia turtur*, *Sturnus unicolor*, *Phylloscopus spp.* and also raptors, as I myself observed during the period 21/8/81 to 2/9/81. These observations and those of other ornithologists are shown in Tables 5 and 6. Except for my own in 1981 and those of S. M. Lister in 1984, they do not represent a period of continuous observation and in general refer to isolated sightings, when the observers chanced to be in the area. From the data presented, we cannot presume that the autumn migration is more important than the spring one. There were merely more days of observation during autumn than during spring.

There are other observations on the south coast of Portugal, e.g. two exhausted juveniles of *Gyps fulvus* landed on fishing boats off the coast in September 1979 and September 1980 respectively. Both birds were subsequently released back to the wild by CEMPA. Another drowned juvenile of *Gyps fulvus* was washed ashore in October 1983.

## C. The hunting law and taxidermy

Since 1974, shooting raptors, both diurnal and nocturnal, has been forbidden by law, as well as the destruction of nests and nestlings. The rewarded persecution of raptors therefore came to an end.

There are to-day in Portugal around 300,000 hunters (J. F. Bugalho, pers. comm.), and only 300 guards to control them, whilst Portuguese birdwatchers number around 100. So the ratio of guards/hunters is 1/1,000 and that of birdwatchers/hunters is 1/3,000.

These guards do not have enough knowledge to deal with hunters and they are far too few. Nevertheless, a new hunting law is about to be passed and, when it is, there will probably be more hunt guards, and their education, as well as that of hunters, will start. Already 1986 has brought an improvement: an examination for applicants for hunting permits. New hunters will not be so ignorant about the law and will begin to understand the reasons for respecting the birds.

Unfortunately, a stuffed trophy is the dream of most hunters, so they don't mind taking the risk of shooting a forbidden species.

Taxidermy in Portugal is not regulated by the existing hunting law and is therefore uncontrolled. Anyone can buy a stuffed raptor or any other bird or mammal in a shop.

A group of young ornithologists enquired into stuffed specimens throughout the country, the results of which are given in Tables 7 & 8.

Table 7. Enquiry into stuffed specimens by the group QUERCUS - Vila Real.

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No. of collaborators	32
No. of stuffed animals	847*
Total of birds	600 (71%)+
Total of protected birds (from 86 species)	445 (74% of +)
Total of raptors (from 25 species)	244 (41% of + and 29% of *)

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Table 8. Most important species of stuffed raptors found during the enquiry.

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<i>Gyps fulvus</i>	6
<i>Aquila chrysaetos</i>	6
<i>Accipiter nisus</i>	23
<i>Buteo buteo</i>	46
<i>Tyto alba</i>	48
<i>Asio flammeus</i>	6
<i>Athene noctua</i>	15
<i>Strix aluco</i>	18
<i>Bubo bubo</i>	21

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## DISCUSSION

From all the data presented, we can presume that around 11,000 raptors arrive in Portugal in spring to breed. The number migrating in autumn must be much greater, if we add all the juveniles reared during the year (some 25,000).

Analysing Table 2, we can see that this number is further increased by all the raptors from northern Europe which use Portugal as a corridor on their migration southwards. Almost all the birds listed in Table 2 were shot during the hunting season which sometimes opens on August 15th, especially the one governing the Turtle Dove *Streptopelia turtur*. Fortunately there is no hunting season in spring.

The places where all these raptors were shot are somewhat scattered (see Map 1), but the Cape of Sagres has three records and the western coast a few others. On this coast there have been observations of non-breeding raptors passing through Portugal, such as my own of a *Falco eleonorae* at Estoril on 5/8/85 and that of Peter Fearon (pers. comm.) at Lagoa de S. André: a *Falco vespertinus* on 14/8/82. *Falco columbarius* also use Portugal in their southern passage as shown in Table 2.

The Cape of Sagres is where all the birds migrating along the western coast converge. There, they either stop or else fly over the ocean to reach N. Africa. The observations given in Tables 5 and 6 show that at least nine different species of raptors use this Cape as a "land bridge" on their southern migration. Nevertheless the number of observations made is not enough to presume its importance for migrating birds. Most of the *Gyps fulvus* observed were juveniles.

In October and November 1985, two juveniles of *Gyps fulvus* landed in Lisbon (R. S. Guedes, pers. comm.). This indicates that the juveniles of *Gyps fulvus* leave their breeding sites at the beginning of autumn, and on their way south try to reach the western sea coast of Portugal and then follow it down to the Cape of Sagres.

For some species, Portugal is probably the northern limit of their wintering ranges. *Pandion haliaetus* is the most obvious species to which this applies. There are only two or three pairs breeding in Portugal and during the winter of 1985/86 there were at least 7 wintering individuals (Table 3 & Map 2). Probably this also occurs with *Buteo buteo*, *Accipiter nisus*, *Accipiter gentilis* and *Falco columbarius* (one individual at the Barragem de Odivelas on 20/1/86 (R. S. Guedes, pers. comm.)).

## CONCLUSION

Portugal is probably not the most important place for migrating raptors in the Iberian Peninsula. Great concentrations at narrow crossings do not occur as they do at the Straits of Gibraltar. The Cape of Sagres seems to be the only exception, although sufficient observations have not yet been made to prove this.

The main cause of death among migrant raptors is shooting. Education for the hunters and an increased number of efficient guards would definitely help to reduce the killing. Taxidermy should also be controlled or preferably forbidden.

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