

## ORNITHOLOGICAL IMPORTANCE OF THE ISLAND OF ALEGRANZA (CANARY ISLANDS)

By A. MARTÍN<sup>1</sup> and M. NOGALES<sup>1</sup>

**SUMMARY.** The uninhabited island of Alegranza harbours one of the most important bird populations of the Canarian Archipelago. At least 21 species are known to breed, 6 of them being seabirds, of which Cory's Shearwater (*Calonectris diomedea*) is the most numerous, with about 10.000 breeding pairs. The population of British Storm Petrel (*Hydrobates pelagicus*) is perhaps the biggest of the Canary Islands, with several hundred pairs.

Of the 6 species of breeding birds of prey, the Barbary Falcon (*Falco peregrinoides*) is the most interesting, with one nesting pair out of the seven known to breed in the European Community. The island also contains 2 pairs of Osprey and about 25 pairs of Eleonora's Falcon.

In addition, Alegranza is a very important resting place for many migratory species of passerines.

The aim of this paper is to present up to date information on the birds of Alegranza, and to emphasize the ornithological importance of the island at regional, national and international levels in order that it achieves the proper management for its preservation.

### THE ISLAND OF ALEGRANZA

Alegranza is the Northernmost island of the Canarian archipelago, being situated about 17 Km from the north coast of Lanzarote and 250 Km to the south-east of Salvagem Grande.

---

<sup>1</sup>Departamento de Biología Animal (Zoología), Universidad de La Laguna, 38206, Tenerife, Islas Canarias

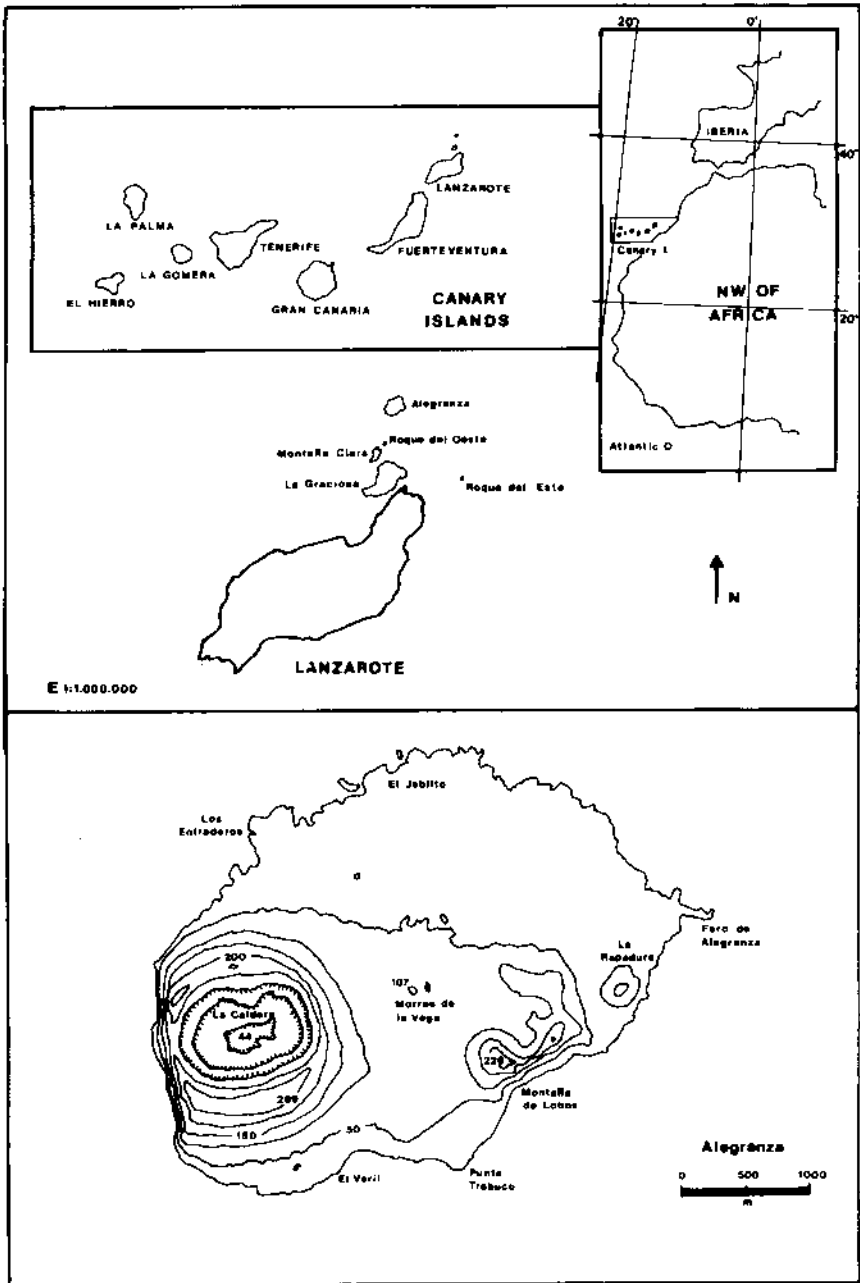


Figure 1. Position of Alegranza Island in the Canary Archipelago

The island is almost round in outline, having an area of about 10.5 Km<sup>2</sup>. There are three extinct volcanoes, the highest of them being La Caldera, which rises 289 m a.s.l. (Figure 1). There is a sandy central plateau, some stony plains and low volcanic hills in the northern part of the island. The coast is quite steep due to marine erosion (Hernández-Pacheco, 1909). There are some small cliffs and two sandy beaches.

The vegetation is typical of the dry eastern Canary Islands, although clearly impoverished in numbers of species. Most common species are *Salsola vermiculata*, *Suaeda vera*, *Atriplex glauca*, *Mesembryanthemum crystallinum*, *Nicotiana glauca*, *Euphorbia obtusifolia*, *Euphorbia balsamifera*, *Chenoleoides tomentosa*, and *Lycium intricatum*.

Nowadays no one lives on the island, but in the past it was inhabited by a lighthouse-keeper and the island tenant, along with their families.

### THE SEABIRDS

At least six species of seabirds are currently known to breed on Alegranza (table 1), but it has been said that two others, Manx Shearwater (*Puffinus puffinus*) and Great Black-backed Gull (*Larus marinus*) bred on the island in the last century (Webb *et al.*, 1842; Bolle, 1855 and 1857). Recently, a small population of Manx Shearwater has been proved to nest on La Palma and Tenerife (Martín *et al.*, 1989; Hernández *et al.*, 1990a) but the Great Black-backed Gull is only a rare regular winter visitor to the Canarian archipelago.

Species	Estimated population (Breeding pairs)
<i>Bulweria bulwerii</i>	100
<i>Calonectris diomedea</i>	8,000-10,000
<i>Puffinus assimilis</i>	Few
<i>Hydrobates pelagicus</i>	Several hundred
<i>Oceanodroma castro</i>	Few
<i>Larus cachinnans</i>	60

**Table 1.** Seabirds breeding in Alegranza

**Bulwer's Petrel (*Bulweria bulwerii*)**

Mentioned by Webb *et al.* (1842) as very common, and also by Bolle (1855), who even indicated harvesting in great numbers for food, this species was not found breeding again on the island until 1987 (Hernández *et al.*, 1990b), although Martín (1987) had previously found remains of dead birds and a few bones in Barn Owl pellets.

In spite of great difficulties in carrying out an accurate census, ringing and comparisons with other colonies lead us to estimate an island population of about one hundred pairs, most of them concentrated in one colony located under boulders on the north coast. Alegranza harbours about 10% of the total population of Bulwer's Petrel in the Canaries.

**Cory's Shearwater (*Calonectris diomedea*)**

Being the most numerous seabird species in the Canary Island, Alegranza has the largest colony of the archipelago, with about 8,000-10,000 breeding pairs (Martín *et al.*, 1991), and of all the macaronesian islands it is only surpassed by that on Salvagem Grande where 13,000 pairs are known to nest (Mougin and Roux, 1988).

By tradition, the shearwater young were exploited on Alegranza, and in the past the colony was bigger than today. Hernández-Pacheco (1909) mentions that at the end of 18th century the annual slaughter of young comprised 12,000 birds. Pallarés (1987) indicated 6,000-8,000 in the first half of this century, whereas in the 1950s De La Hoz (1962) stated that 6,000-7,000 birds were taken in one year. In 1970 the numbers had declined to 4,000-5,000 (Lovegrove, 1971).

In 1974 the hunting of Cory's Shearwater was forbidden by the Canarian Government, but as there are no wardens on the island a few hundred birds are taken every year illegally. Though difficult to estimate, the colony on Alegranza may represent about 30% of the total Canarian population.

**Little Shearwater (*Puffinus assimilis*)**

Very little is known of this species, not only in Alegranza, but also elsewhere in the archipelago. On Alegranza the only confirmed breeding record was the finding of a recently dead chick on 13th September 1986 (Martín *et al.*, 1987). Previously, Lovegrove (1971) mentioned a colony, but we believe there is no foundation for that statement. Probably no more than a few pairs breed on Alegranza, but the whole population of the archipelago is also low, perhaps being less than 400 pairs (Martín *et al.*, 1987).

**Storm Petrel (*Hydrobates pelagicus*)**

Of all the macaronesian islands the Canaries are the only breeding place for this species. Roque Grande de Salmor (El Hierro) and Alegranza are the main colonies, each with several hundred pairs (Nogales *et al.*, in press). Alegranza possibly harbours nearly 50% of the breeding population of the Canary Islands.

**Madeiran Storm-petrel (*Oceanodroma castro*)**

Only a few scattered pairs probably nest (birds mist-netted showing brood patch) in the north and south coast. This species was found breeding in the archipelago in 1983 (Martín *et al.*, 1984), and not until 1987 is it reported from Alegranza (Delgado *et al.*, 1989). It was possibly overlooked by former ornithologists due to the main breeding season being during the autumn and winter months. However, a few birds have been heard on Alegranza in July. This species is also scarce in all the Canary Islands. A rough estimate might be less than 300 breeding pairs (Martín *et al.*, 1987).

**Yellow-legged Herring Gull (*Larus cachinnans*)**

Nesting was confirmed on Alegranza in 1987 (Delgado *et al.*, 1991). The island harbours a breeding population of 60 pairs, which fortunately is less than 2% of the total population of the archipelago, since it is known that *Larus cachinnans* can prey upon small procellariiformes and on the eggs of larger species. There are no data to ascertain if this colony represents a recent colonization or was overlooked by former ornithologists.

## THE BIRDS OF PREY

Six species of raptors (one nocturnal) breed on the island (table 2), and it seems that another one, *Buteo buteo*, bred in the past (see under extinct birds).

**Egyptian Vulture (*Neophron percnopterus*)**

Despite the population of this species having been drastically reduced in the archipelago during the last 40 years, even disappearing in some islands, it seems that on Alegranza the Egyptian Vulture has maintained its numbers since the beginning of the present century. Bannerman (1914) mentions that probably only a single pair bred on the island, while at least since 1988 two pairs nest every year, which represents about 6 % of the total population of the Canary Islands (35 pairs) (Delgado *et al.*, 1988).

Species	Estimated population (Breeding pairs)
<i>Neophron percnopterus</i>	2
<i>Pandion haliaetus</i>	2
<i>Falco tinnunculus</i>	3-4
<i>Falco eleonora</i>	25
<i>Falco pelegrinoides</i>	1
<i>Tyto alba</i>	1-2

**Table 2.** Birds of prey breeding in Alegranza

#### **Osprey** (*Pandion haliaetus*)

According to Bannerman (1914) this species was quite common at the beginning of this century. At present there are 8 eyries, but observations during the last 8 years indicate that usually only two are occupied every year, although in 1984 Hernández *et al.*, (1987) mention the unsuccessful breeding of a third pair. The two pairs on Alegranza are very important because the total Spanish population is only about 25 pairs (12 of them in the Canaries).

#### **Kestrel** (*Falco tinnunculus*)

This is the most abundant raptor in the Canary Islands, being represented in the eastern islands and their islets by an endemic subspecies (*F. t. dacotiae*). As today, kestrels were quite common on Alegranza (Bannerman, 1914; Lovegrove, 1971). Nowadays the population is usually 3-4 breeding pairs (Delgado *et al.*, 1988).

#### **Eleonora's Falcon** (*Falco eleonora*)

The colonies of the Canaries constitute the Southern and westernmost limit of the species' breeding range. Alegranza harbours about one third (a minimum of 24 pairs) of the total population of the Canarian archipelago (about 66 pairs) (Delgado *et al.*, 1988).

#### **Barbary Falcon** (*Falco pelegrinoides*)

Lovegrove (1971) mentions the existence of 1 or 2 pairs in Alegranza without giving any conclusive proof of nesting. In May 1989 a pair showing breeding behaviour in a suitable place was observed. In May 1990 a recently

fledged young and the two adults were sitting together at the same site. This is one of under ten pairs which breed in the archipelago (Delgado *et al.*, 1988). The Canarian population is the only one known in Europe.

#### **Barn Owl (*Tyto alba*)**

It has been estimated that 1-2 pairs of the endemic subspecies of the eastern islands and their islets (*T. a. gracilirostris*) breed on Alegranza (Delgado *et al.*, 1988). Their numbers are more or less the same as 80 years ago when Bannerman (1914) mentions 2-3 pairs.

### OTHER BREEDING BIRDS

#### **Barbary Partridge (*Alectoris barbara*)**

A few birds lives on the islands, mainly inside of La Caldera. Breeding has not yet been confirmed yet but is suspected.

#### **Stone Curlew (*Burhinus oediconemus*)**

At the beginning of this century it was found to be a very plentiful breeding bird (Bannerman, 1914; Lovegrove, 1971). More data on the population size is needed but probably it is greater than 10 pairs.

#### **Rock Dove (*Columba livia*)**

Their numbers appear to indicate great fluctuations, as Bannerman (1914) indicates that very few were seen, while Lovegrove (1971) states that is was numerous. In our visits we have observed widely differing numbers of birds.

#### **Lesser Short-toed Lark (*Calandrella rufescens*)**

Scarce and irregular, sometimes disappearing completely from the island.

#### **Berthelot's Pipit (*Anthus berthelotii*)**

Considered a common breeding bird by Bannerman (1914) and Lovegrove (1971), it is still common, particularly in the central plateau.

#### **Spectacled Warbler (*Sylvia conspicillata*)**

It has always been very scarce. Bannerman (1914) mentioned one bird and three were observed by Lovegrove (1971). The interior of La Caldera is one of the best places to find this species.

#### **Raven (*Corvus corax*)**

Bannerman (1914) mentions a single bird, but was told that formerly the

Raven was plentiful in Alegranza. The present population of the island comprises only 2 breeding pairs.

**Linnet** (*Carduelis cannabina*)

This species was described as scarce by Bannerman in 1914, and it is so today.

**Trumpeter Finch** (*Bucanetes githagineus*)

It is quite scarce species, but breeding has been confirmed (Quilis, pers. comm.). The species probably undergoes inter-island movements, as it is sometimes absent from Alegranza.

### EXTINCT BIRDS

During the present century it seems that at least three species, *Buteo buteo*, *Haematopus meadewaldoi* and *Saxicola dacotiae* disappeared as breeders from the island.

**Buzzard** (*Buteo buteo*)

Three or four birds were seen together and specimens were collected in 1913 (Bannerman, 1914 and 1963). In addition, the same author was told that buzzards bred regularly on this small island, but since then no one has confirmed that assertion. Moreover, this species has also disappeared as a breeder from Lanzarote, the nearest main island, within the last twenty years.

In 1989 and 1990 buzzards were observed on Alegranza, but we believe that they were passage migrants. In this respect it is interesting to point out that a bird collected on Alegranza in 1913 (probably one of the Bannerman's specimens mentioned above) is of doubtful identity and could belong to the forms *Buteo b. vulpinus* or *B. rufinus cirtensis* (James, 1984).

**Canarian Black Oystercatcher** (*Haematopus meadewaldoi*)

An extinct endemic species of the Canarian archipelago, which was probably restricted to the eastern islands and its islets (Fuerteventura, Lobos, Lanzarote, Graciosa, Alegranza, Roque del Oeste, and perhaps Montaña Clara and Roque del Este). Numbers were probably always small (Collar and Stuart, 1985), and it seems that in Alegranza it was regularly observed (parties of two or three birds) by the Graciosan fishermen and by two lighthouse keepers. The last sightings were recorded about 1940 (Lovegrove, 1971).



We agree with Collar and Stuart (1985) that the disappearance of this species, at least on Alegranza, might be due to the impact of introduced mammalian predators, in this case, cats.

**Muriel's Stonechat** (*Saxicola dacotiae murielae*)

Discovered at the beginning of this century and considered restricted to Alegranza and Montaña Clara (Bannerman, 1914).

There is some doubt about the validity of this subspecies, but in any case Bannerman (1914) mentions it was very common on Alegranza, and according to the tenant the species bred on the island and was resident. If we accept this, then the population of the island probably disappeared before 1949, as the bird was subsequently not known to the lighthouse keepers (Lovegrove, 1971).

## MIGRATORY BIRDS

In addition to the breeding populations of seabirds and birds of prey, the island is also important as a resting place for many migrant birds. The rough estimate of 23,000 migrants killed by the Eleonora's Falcon population of the eastern islets (one third of them breeding on Alegranza) during its stay in the archipelago (Hernández *et al.*, 1985) gives an idea of the numbers of non-breeding birds passing through the island.

At present more than 60 species have been recorded on the island (See appendix), and the real number is probably far in excess of this, as other species are known from the neighbouring islets and Lanzarote.

## THREATS

### Direct exploitation

As was mentioned above, the harvesting of well-grown chicks of Cory's Shearwater has been a long-established tradition. The last big slaughter took place on 1983 (more than 3000 young), but several hundreds are taken annually.

### Habitat disturbance and destruction

Little habitat disturbance or destruction presently occurs. However, soil erosion and the alteration of plant species composition is brought about by the

presence of feral goats (*Capra hircus*), and sheep<sup>2</sup> (*Ovis aries*) and numerous rabbits (*Oryctolagus cuniculus*). In addition, a quay is proposed to be built near the lighthouse, so disturbance by visitors will probably be increased.

### Predators

A few feral cats have been introduced to the island, but fortunately, at present, they prey mainly upon rabbits and mice (Nogales *et al.*, 1992). There is also an observation of a rat (*Rattus* sp.) (Concepción, pers. comm.) in 1990, but trapping during a few days, failed to catch any individual (Rodríguez, pers. comm.).

## CONSERVATION ACTION AND REQUIREMENTS

All the birds are legally protected. In addition, the island is included in a Natural Park, being also a Special Protection Area under the EEC's Wild Birds Directive, and considered as an Important Bird Area in Europe (Grimmet and Jones, 1989).

Hunting is forbidden, but still takes place as the small boat for surveillance of the Natural Park only visits the island from time to time. In order to preserve the bird communities of the island the following actions are recommended:

1. The island be removed from private ownership to guarantee future status.
2. The island be permanently wardened and laws relating to wildlife enforced.
3. A modest biological research station be established and adequately funded.
4. The complete eradication of all introduced species.
3. An immediate survey of all wildlife populations for future monitoring.

---

<sup>2</sup> There are about 10 sheep. The number of goats was reduced in 1900 from nearly one hundred to perhaps less than ten. In the past there were about 500 goats and 25 sheep.

## ACKNOWLEDGEMENTS

We would like to thank Bernard Zonfrillo for commenting on and revising the manuscript.

## REFERENCES

BANNERMAN, D.A.:

1914. An ornithological expedition to the Eastern Canary Islands. Part I. *Ibis*, 10(2):38-90.

BANNERMAN, D. A.:

1963. *Birds of the Atlantic Islands. Vol I. A History of the Birds of the Canary Islands and of the Salvages*. Oliver and Boyd. Edinburgh and London. 358 pp.

BOLLE, C.:

1855. Bemerkungen über die Vögel der Canarischen Inseln. *J. Orn.*, 3:171-181.

BOLLE, C.:

1857. Mein zweiter Beitrag zur Vogelkunde der Kanarischen Inseln. *J. Orn.*, 5:305-351.

COLLAR, N. J. and N. STUART.:

1985. Threatened birds of Africa and related islands. *The ICBP red data book. Part I*. ICBP. Cambridge. 761 pp.

De La HOZ, A.:

1962. *Lanzarote*. Las Palmas de G.C.

DELGADO, G., N. TRUJILLO, J. CARRILLO, F. SANTANA, V. QUILIS, M. NOGALES, O. TRUJILLO, K. EMMERSON and E. HERNÁNDEZ:

1988. *Censo de las aves rapaces del Archipiélago Canario*. Museo Insular de Ciencias Naturales de Santa Cruz de Tenerife. Informe no publicado. 555 pp.

DELGADO, G., A. Martín, M. NOGALES, V. QUILIS, E. HERNÁNDEZ, O. TRUJILLO and F. SANTANA:

1989. Nuevos datos sobre el Paíño de Madeira (*Oceanodroma castro*) en las Islas Canarias. *Actas de la IV reunión del G.I.A.M.* (1988):137-145.

DELGADO, G., A. Martín, M. NOGALES, V. QUILIS, E. HERNÁNDEZ and O. TRUJILLO:

1991. Distribution and population status of the Herring Gull *Larus argentatus* in the Canary Islands. *Seabird*, 14:55-59.

GRIMMET, R. F. A. and T. A. JONES:

1989. Important bird areas in Europe. *ICBP Technical Publication N°9*. 888pp.

HERNÁNDEZ-PACHECO, E.:

1909. Estudio de Lanzarote y de las Isletas Canarias. *R. Soc. Esp. Hist. Nat.* 6:1-236.

HERNÁNDEZ, H., A. MARTÍN, G. DÍAZ, O. TRUJILLO and M. ASCANIO:

1985. Censo y datos sobre la biología del Halcón de Eleonor (*Falco eleonorae* Gené, 1839) en las Islas Canarias. Agosto-Septiembre 1983. *Doñana, Acta Vertebrata*, 12(1):63-73.

HERNÁNDEZ, E. G. DÍAZ and O. TRUJILLO:

1987. El Aguila Pescadora (*Pandion Haliaetus*) en Canarias: situación actual y aspectos de la Biología. *Vieraea*, 17:203-207.

HERNÁNDEZ, E., M. NOGALES, V. QUILIS and G. DELGADO:

- 1990a. Nesting of the Manx Shearwater (*Puffinus puffinus* Brünich, 1764) on the island of Tenerife (Canary Islands). *Boon. zool. beitr.*, 41 (1):59-62.

HERNÁNDEZ, E., A. MARTÍN, M. NOGALES, V. QUILIS, G. DELGADO and O. TRUJILLO:

- 1990b. Distribution and status of Bulwer's Petrel (*Bulweria bulweria* Jardine and Selby, 1828) in the Canary Islands. *Bol. Mus. Mun. Funchal*, 42(214):5-16.

JAMES, A.:

1984. Geographic variation in the Buzzard *Buteo buteo* (Linnaeus, 1758): Mid-Atlantic and West Mediterranean islands. (Aves: Accipitridae). *Beaufortia*, 34(4):101-116.

LOVEGROVE, R.:

1971. B.O.U. supported expedition to Northeast Canary Islands. *Ibis*, 113:269-272.

MARTÍN, A.:

1987. *Atlas de las aves nidificantes en la isla de Tenerife*. Instituto de Estudios Canarios. Monografía 32. S/C de Tenerife. 275 pp.

MARTÍN, A., E. HERNÁNDEZ, G. DELGADO and V. QUILIS:

1984. Nidificación del Paíño de Madeira *Oceanodroma castro* (Hartcourt, 1861) en las Islas Canarias. *Doñana Acta Vertebrata*, 10 (1):337-340.

MARTÍN, A., G. DELGADO, M. NOGALES, V. QUILIS, O. TRUJILLO, E. HERNÁNDEZ and F. SANTANA:

1987. *Distribución y Status de las aves marinas nidificantes en el Archipiélago Canario con vistas a su conservación*. Proyecto de investigación realizado por el Departamento de Biología Animal (Zoología) de la Universidad de La Laguna. Unpublished.

MARTÍN, A., G. DELGADO, M. NOGALES, V. QUILIS, O. TRUJILLO, E. HERNÁNDEZ and F. SANTANA:

1989. Premières données sur la nidification du Puffin des Anglais (*Puffinus puffinus*), du Pétrel-frégate (*Pelagodroma marina*) et de la Sterne de Dougall (*Sterna dougallii*) aux îles Canaries. *L'Oiseau et R.F.O.*, 59:73-83.

MARTÍN, A., G. DELGADO, M. NOGALES, V. QUILIS, E. HERNÁNDEZ and O. TRUJILLO:

1991. La colonia de Puffin Cendré (*Calonectris diomedea*) de l'île d'Alegranza (Lanzarote/Iles Canarias). *Bol. Mus. Mun. Funchal*. 43(228):107-120.

## ACKNOWLEDGEMENTS

We would like to thank Bernard Zonfrillo for commenting on and revising the manuscript.

## REFERENCES

BANNERMAN, D.A.:

1914. An ornithological expedition to the Eastern Canary Islands. Part I. *Ibis*, 10(2):38-90.

BANNERMAN, D. A.:

1963. *Birds of the Atlantic Islands. Vol I. A History of the Birds of the Canary Islands and of the Salvages.* Oliver and Boyd. Edinburgh and London. 358 pp.

BOLLE, C.:

1855. Bemerkungen über die Vögel der Canarischen Inseln. *J. Orn.*, 3:171-181.

BOLLE, C.:

1857. Mein zweiter Beitrag zur Vogelkunde der Kanarischen Inseln. *J. Orn.*, 5:305-351.

COLLAR, N. J. and N. STUART.:

1985. Threatened birds of Africa and related islands. *The ICBP red data book.* Part I. ICBP. Cambridge. 761 pp.

De La HOZ, A.:

1962. *Lanzarote.* Las Palmas de G.C.

DELGADO, G., N. TRUJILLO, J. CARRILLO, F. SANTANA, V. QUILIS, M. NOGALES, O. TRUJILLO, K. EMMERSON and E. HERNÁNDEZ:

1988. *Censo de las aves rapaces del Archipiélago Canario.* Museo Insular de Ciencias Naturales de Santa Cruz de Tenerife. Informe no publicado. 555 pp.

DELGADO, G., A. Martín, M. NOGALES, V. QUILIS, E. HERNÁNDEZ, O. TRUJILLO and F. SANTANA:

1989. Nuevos datos sobre el Paíño de Madeira (*Oceanodroma castro*) en las Islas Canarias. *Actas de la IV reunión del G.I.A.M.* (1988):137-145.

DELGADO, G., A. Martín, M. NOGALES, V. QUILIS, E. HERNÁNDEZ and O. TRUJILLO:

1991. Distribution and population status of the Herring Gull *Larus argentatus* in the Canary Islands. *Seabird*, 14:55-59.

GRIMMET, R. F. A. and T. A. JONES:

1989. Important bird areas in Europe. *ICBP Technical Publication N°9.* 888pp.

HERNÁNDEZ-PACHECO, E.:

1909. Estudio de Lanzarote y de las Isletas Canarias. *R. Soc. Esp. Hist. Nat.* 6:1-236.

HERNÁNDEZ, H., A. MARTÍN, G. DÍAZ, O. TRUJILLO and M. ASCANIO:

1985. Censo y datos sobre la biología del Halcón de Eleonor (*Falco eleonora* Gené, 1839) en las Islas Canarias. Agosto-Septiembre 1983. *Doñana, Acta Vertebrata*, 12(1):63-73.

HERNÁNDEZ, E. G. DÍAZ and O. TRUJILLO:

1987. El Aguila Pescadora (*Pandion Haliaeetus*) en Canarias: situación actual y aspectos de la Biología. *Vieraea*, 17:203-207.

HERNÁNDEZ, E., M. NOGALES, V. QUILIS and G. DELGADO:

- 1990a. Nesting of the Manx Shearwater (*Puffinus puffinus* Brünich, 1764) on the island of Tenerife (Canary Islands). *Boon. zool. beitr.*, 41 (1):59-62.

HERNÁNDEZ, E., A. MARTÍN, M. NOGALES, V. QUILIS, G. DELGADO and O. TRUJILLO:

- 1990b. Distribution and status of Bulwer's Petrel (*Bulweria bulweria* Jardine and Selby, 1828) in the Canary Islands. *Bol. Mus. Mun. Funchal*, 42(214):5-16.

JAMES, A.:

1984. Geographic variation in the Buzzard *Buteo buteo* (Linnaeus, 1758): Mid-Atlantic and West Mediterranean islands. (Aves: Accipitridae). *Beaufortia*, 34(4):101-116.

LOVEGROVE, R.:

1971. B.O.U. supported expedition to Northeast Canary Islands. *Ibis*, 113:269-272.

MARTÍN, A.:

1987. *Atlas de las aves nidificantes en la isla de Tenerife*. Instituto de Estudios Canarios. Monografía 32. S/C de Tenerife. 275 pp.

MARTÍN, A., E. HERNÁNDEZ, G. DELGADO and V. QUILIS:

1984. Nidificación del Paíño de Madeira *Oceanodroma castro* (Harcourt, 1861) en las Islas Canarias. *Doñana Acta Vertebrata*, 10 (1):337-340.

MARTÍN, A., G. DELGADO, M. NOGALES, V. QUILIS, O. TRUJILLO, E. HERNÁNDEZ and F. SANTANA:

1987. *Distribución y Status de las aves marinas nidificantes en el Archipiélago Canario con vistas a su conservación*. Proyecto de investigación realizado por el Departamento de Biología Animal (Zoología) de la Universidad de La Laguna. Unpublished.

MARTÍN, A., G. DELGADO, M. NOGALES, V. QUILIS, O. TRUJILLO, E. HERNÁNDEZ and F. SANTANA:

1989. Premières données sur la nidification du Puffin des Anglais (*Puffinus puffinus*), du Pétrel-frégate (*Pelagodroma marina*) et de la Sterne de Dougall (*Sterna dougallii*) aux îles Canaries. *L'Oiseau et R.F.O.*, 59:73-83.

MARTÍN, A., G. DELGADO, M. NOGALES, V. QUILIS, E. HERNÁNDEZ and O. TRUJILLO:

1991. La colonia de Puffin Cendré (*Calonectris diomedea*) de l'île d'Alegranza (Lanzarote/Iles Canarias). *Bol. Mus. Mun. Funchal*. 43(228):107-120.

MOUGIN, J.L. and F. ROUX:

1988. La stabilité des effectifs des Puffins Cendrés *Calonectris diomedea borealis* de l'île Selvagem Grande (30° 09'N, 15°52'W) de 1983 à 1986. *Bocagiana*, 116: 1-6.

NOGALES, M., J. L. RODRÍGUEZ, G. DELGADO, V. QUILIS and O. TRUJILLO:

1992. The diet of feral cats (*Felis catus*) on Alegranza Island (North of Lanzarote, Canary Islands). *Folia Zoologica*, 41:209-212.

NOGALES, M., A. MARTÍN, V. QUILIS, G. DELGADO, E. HERNÁNDEZ and O. TRUJILLO: (in press.). Status y distribución del Paíño Común (*Hydrobates pelagicus*) en las Islas Canarias. *Ardeola*.

PALLARÉS, A.:

1987. Población de pardelas en Lanzarote. *Lancelot* 200 y 201.

WEBB, P.B., S. Berthelot and M.A. Moquin-Tandon:

1842. Ornithologie Canarienne. In *Histoire Naturelle de l'les Canaries*. Tomo II, vol. 10: 1-48. Béthune ed. Paris.

#### APPENDIX. List of migratory birds recorded on Alegranza.

B: Bannerman (1914); L: Lovegrove (1971); D: Delgado (Pers. comm.); R: Rodriguez (Pers. comm.); Q: Quilis (Pers. comm.); A: Authors' observations.

<i>Sula bassana</i> A	<i>Sterna sandvicensis</i> A	<i>Turdus iliacus</i> A
<i>Egretta garzetta</i> L, A	<i>Streptopelia turtur</i> A	<i>Acrocephalus paludicola</i> A
<i>Ardea cinerea</i> B, A	<i>Asio flammeus</i> A	<i>A. schoenobaenus</i> A
<i>Milvus migrans</i> A	<i>Apus apus</i> A	<i>Hippolais pallida</i> A
<i>Accipiter nisus</i> D, A	<i>Apus pallidus</i> B	<i>Hippolais polyglotta</i> L
<i>Buteo buteo</i> D, A	<i>Upupa epops</i> B, A	<i>Sylvia communis</i> A
<i>Hieraaetus pennatus</i> R, Cf	<i>Jynx torquilla</i> D	<i>Sylvia atricapilla</i> D
<i>Hieraaetus fasciatus</i> A	<i>Riparia riparia</i> A	<i>Sylvia borin</i> D, A
<i>Falco subbuteo</i> A	<i>Hirundo rustica</i> B, L, A	<i>Phylloscopus bonelli</i> A
<i>Coturnix coturnix</i> A	<i>Dichon urbica</i> B, R, A	<i>Phylloscopus sibilatrix</i> A
<i>Gallinula chloropus</i> A	<i>Anthus trivialis</i> A	<i>Phylloscopus trochilus</i> A
<i>Haematopus ostralegus</i> A	<i>Anthus cervinus</i> R	<i>Phylloscopus collybita</i> A
<i>Charadrius hiaticula</i> A	<i>Motacilla flava</i> A	<i>Muscicapa striata</i> A
<i>Charadrius morinellus</i> A	<i>Motacilla cinerea</i> A	<i>Ficedula hypoleuca</i> A
<i>Pluvialis squatarola</i> A	<i>Motacilla alba</i> A	<i>Oriolus oriolus</i> A
<i>Scolopax rusticola</i> Q	<i>Luscinia megarhynchos</i> A	<i>Lanius senator</i> A
<i>Numenius phaeopus</i> A	<i>Phoenicurus ochruros</i> A	<i>Lanius excubitor</i> A
<i>Tringa totanus</i> A	<i>Ph. phoenicurus</i> A	<i>Fringilla coelebs</i> A
<i>Tringa nebularia</i> R, A	<i>Saxicola rubetra</i> A	<i>Carduelis chloris</i> A
<i>Actitis hypoleucos</i> A	<i>Oenanthe hispanica</i> A	<i>Miliaria calandra</i> A
<i>Arenaria interpres</i> R, A	<i>Turdus philomelos</i> A	