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FLAMINGO RESEARCH-SPECIALIST GROUP

I.W.R.B. I.C.B.P.

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BIBLIOTHEQUE

NEWSLETTER Nº. 3 OCTOBER 1986

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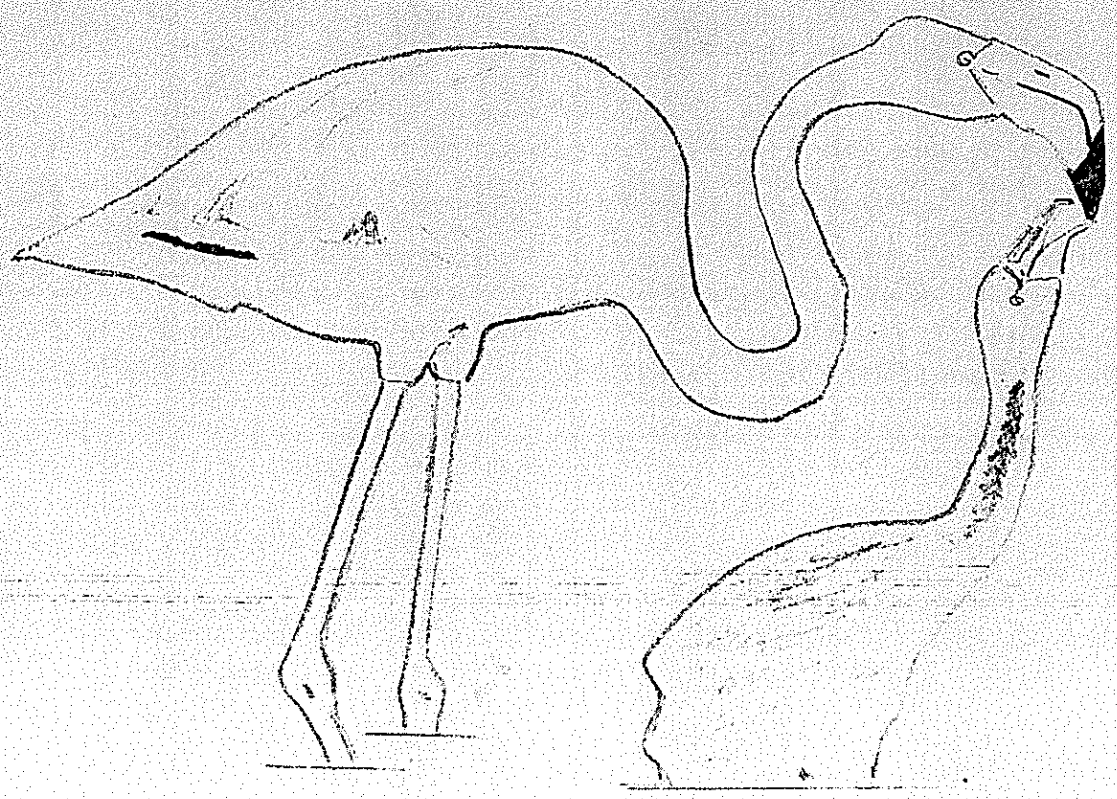


CONTENTS.

NEWSLETTER Nº. 3

OCTOBER 1986

INTRODUCTION.

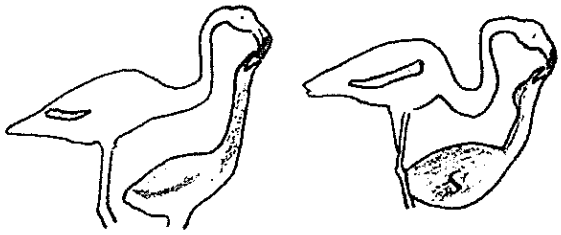
On the request of the ICBP the group will change its name from Flamingo Working Group to FLAMINGO SPECIALIST GROUP. Its aims, detailed in Newsletter N 1 (June 1980) remain unchanged. Some minor organisational changes have taken place recently. The present newsletter (and hopefully future issues as well) has been typed by Dr. Pierre Rollin who now acts as assistant co-ordinator (Old World). This combined effort by the two co-ordinators and an assistant should assure more regular appearances of the newsletters and special reports. The cost of these is covered by contributions from ICBP, IWRB and Tour du Valat Foundation.

The co-ordinators would like to make it known that they have both been re-elected for a further period of 4 years by ICBP in Kingston (Canada) in June 1986 and by IWRB at Slimbridge (U.K.) in September 1986.

Since the appearance of Newsletter N°2 (Nov. 1984) one of the heaviest documented mortalities to befall adult flamingos occurred in the south of France. This was during a spell of severe cold weather reminiscent of those during the winters 1956 and 1962-63. However, in January 1985 there were many more flamingos wintering in France than during these other winters, about 20,000 at the onset of freezing conditions. Some birds were perhaps able to escape to the south (viz. observations in Corsica) but most remained. An impressive rescue operation was organised along the 300 Km. of France's Mediterranean coastline where flamingos winter. This enabled 10,000 birds to survive the two weeks of continuous frost in the field and a further 1,000 were held in captivity at the 8 hastily-organised reception centres. The flamingos responded very well indeed to their being fed in the field and to their short stay in captivity. However, at least 3,000 birds died of which 2,700 were examined (sex, biometrical data) although the real total may have been twice this figure. Fortunately the west Mediterranean population of flamingos was able to withstand this high mortality and, in addition, responded with a record number of breeding birds and high breeding success a few months later.

Alan Johnson, Bart de Boer
15th September 1986

NEWS FROM THE REGIONS (OLD WORLD)
(Compiled by Alan Johnson)



EAST AFRICA

It has now been quite clearly established that the East African flamingo population shifts between the East African lakes themselves and the pans in Namibia and Botswana (Chris Tuite, Newsletter 1980). This evidence for large scale movement could be the answer to the heavy population decrease in the seventies and the reappearance of big numbers (millions) on the Rift Valley Lakes.

It is most unfortunate that the group no longer has a correspondent in this part of the world where flamingos are so abundant. G. Theler and P.E. Rollin visited Lake Nakuru in 1985 and 1986 respectively and reported both species on the Lake, there being hundreds of thousands of Lessers.

WEST AFRICA

Cape Verde Islands. Boa Vista was visited by S.Madge and M.Beaman in February-March 1985 when no flamingos were seen. (Greaters are said to have bred formerly on these islands).

Mauritania. Greater Flamingos nest most years, perhaps every year, in the Banc d'Arguin National Park. Their numbers are monitored by the Park staff and P. Campredon reports 12,940 pairs in the Bay d'Arguin in 1985 and 7,500 prs. in 1986.
A mission by Park staff, A. Johnson and C. Feh visited the colony in May 1986. Almost 10,000 adult flamingos were checked for rings of Camargue origin, just one being found and read. An earlier mission by Park staff accompagnied by J.P. Taris, S. Nicolle and A. Dervieux censused 11,882 Greater Flamingos in October 1985 on part of the Banc d'Arguin and checked 3,124 of these for rings. Eight birds of Camargue origin were seen, 3 of the codes being read.

NORTH AFRICA

Tunisia. Because of low water levels flamingos have not bred in this country since 1976. Counts are made usually twice a year :

January 1985	20365	A.Johnson/H.Kowalski
June 1985	9365	J.Walmsley/J.Skinner
August 1985	31000	M.Smart
January 1986	19831	Th.Gaultier
August 1986	c.17000	M.Smart

Algeria. The mid-January census 1986 revealed a total of 9,243 flamingos, most of these (8,593) being in the Constantine region (M. Bellatreche and colleagues, I.N.A.). This is the highest count on record for the country.

WEST MEDITERRANEAN

Spain. Over the past three years cooperation between Spanish organisations in Andalucia (Agencia del Medio Ambiente and Estacion Biologica de Doñana) and Tour du Valat (France) has increased significantly (exchange of ring readings and counts, collaboration on capture and ringing operations etc.). In 1986 for the first time the colony of Fuente de Piedra (Malaga) was studied throughout the breeding season in a combined investigation by Tour du Valat (Gioia Theler) and AMA (Manuel Rendon). The results of this study are reported elsewhere in this newsletter. In 1985 2200 chicks were reported to have taken wing from about 5900 breeding pairs in the lagoon of Fuente de Piedra. The 1985 colony in the Doñana National Park of an estimated 3000 breeding pairs was entirely destroyed by wild boar.

France. There is still a tendency for the numbers of breeding pairs to increase in the Camargue (Et. du Fangassier) with 13,500 in 1985 and a new record of 19,926 in 1986 (counts from aerial photos). Record numbers of chicks took wing from these two colonies : 7,800 in 1985 and 8,590 in 1986.
The studies begun in the Camargue in 1977 based to a large extent on the sightings of "Darvic" ringed flamingos (breeding biology, population structure and dynamics, survival and mortality, movements) continue. A total of 405 of these ringed birds (of 7 age classes) are known to have bred in the Camargue in 1986, a further 44 in Spain and perhaps 1 in Mauritania.

Italy. Flamingos are of irregular occurrence on mainland Italy, most sightings coming from the North West provinces (Orbetello region) on the Mediterranean coast. However, Stefano Alavena reports eight individuals seen many times during the period January 1985 to September 1986 in the "Riserva Naturale della Salina di Margherita di Savoia" (Gulf of Manfredonia, Puglia) on the Adriatic coast. One wonders whether these birds are of European or Asiatic origin (see Greece)

EAST MEDITERRANEAN

Greece. Greater Flamingos continue to frequent the wetlands of northern Greece in increasing numbers. In addition to the observations listed on p. 23 of Newsletter N°2 many new sightings have been reported, particularly in the Evros delta area. The maximum so far brought to our attention has been of 1,020 birds in January 1986 (Theo Bakker). Many of these birds have been checked for rings of Camargue origin but so far none have been seen. This supports the theory that these flamingos are of Asiatic rather than west Mediterranean origin. The appearance of these birds in N.E. Greece is probably linked to what seems to be a recent extension of the species' breeding range. Indeed, one eads in the News Bulletin of the Turkish Society for the Protection of Wildlife (Dogal Hayati Koruma Dernegi) that the species breeds in the Izmir region which is little over 200 km to the south (since 1982 according to Dr. Mehmet Siki).

Turkey. A waterfowl census carried out on the wetlands of western Anatolia in January 1986, by L.J. Dijksen and F. Koning, revealed a total of 17 891 Greater flamingos. Over 900 were checked for rings/neck-bands but none were seen.

LA REPRODUCCION DEL FLAMENCO (Phoenicopterus ruber roseus) EN FUENTE DE PIEDRA (ESPAÑA), AÑO 1986. M. Rendón.

La cría del flamenco en Fuente de Piedra el año 1986 se inició a final de Febrero, con las copulas y los primeros intentos de ocupacibn del dique central, lugar que viene siendo tradicional para la nidificación de la especie en esta laguna. El número de parejas continuó aumentando hasta mediados de Abril, en que se alcanza el máximo de este periodo, 7300 parejas. A principios de Marzo se observan las primeras puestas y para la fecha esperada, el 10 de Abril, los nacimientos, que se prolongan hasta el 2 de Mayo.

El total de parejas que han criado este año asciende a 7500, contabilizando las reposiciones, y el número de pollos que han volado es de 3300, lo que supone un exito reproductor del 44%.

En la visita realizada a la colonia de cría, una vez terminado el periodo de incubación, se contabilizaron 7376 nidos, 210 huevos abandonados y 548 pollos muertos, todos menores de tres días, con excepcion de 3 que tenían entre 5 y 10 días. Esto nos indica un porcentaje de pérdidas observadas del 10,1%. Basandonos en el número total de parejas reproductoras 7500, en el de pollos que han volado 3300 y considerando la puesta por pareja de un huevo. Las pérdidas reales son del 56%, por lo que el 45% ha sido depredado por Larus fuscus, principalmente, y en menor medida por Vulpes vulpes.

Aporte de agua a la laguna.

A principios de Junio la laguna quedó seca, iniciándose los bombeos junto al dique central, con el fín de inundar una superficia media de 5 Ha., la cual ha permitido preservar la colonia de reproducción hasta la marcha de la totalidad de los pollos a mediados de Agosto.

Balanca de los flamencos con anillas de Camarga.

Este año, por primera vez, se ha realizado el seguimiento de la colonia de flamencos de Fuente de Piedra desde un observatorio situado a 150m. del dique central, esto nos ha permitido evaluar las aves de Camarga, con anilla DARVIC, que han nidificado en esta colonia.

El total de flamencos, con anillas de Camarga, que han sido observados en Fuente de Piedra entre los meses de Enero y Junio de esta año, asciende a 142. La distribución por adados de estas aves (gráfico 1), nos indica que el 90,8% de ellas corresponde a flamencos adultos, mayores de cuatro años, de estos el 57% son aves con más de siete años.

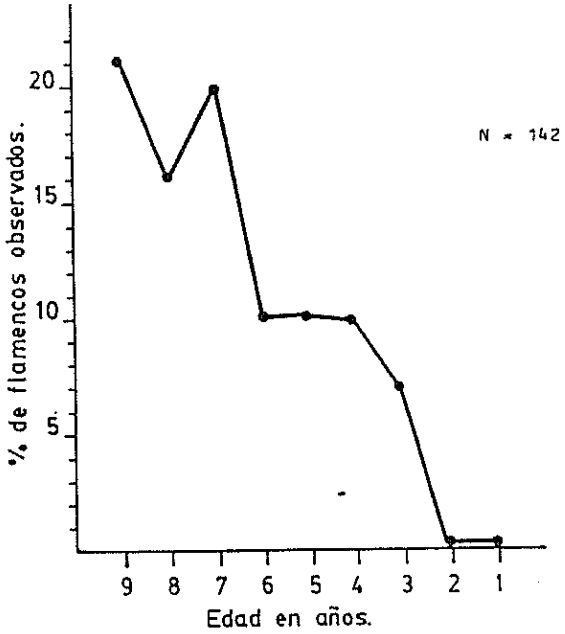


GRAFICO 1.

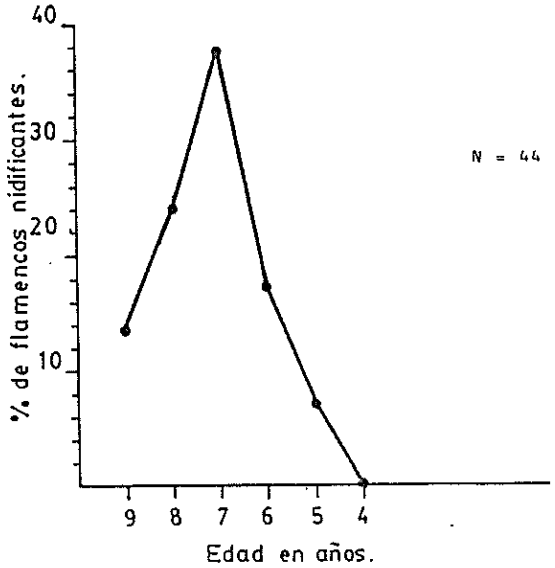


GRAFICO 2.

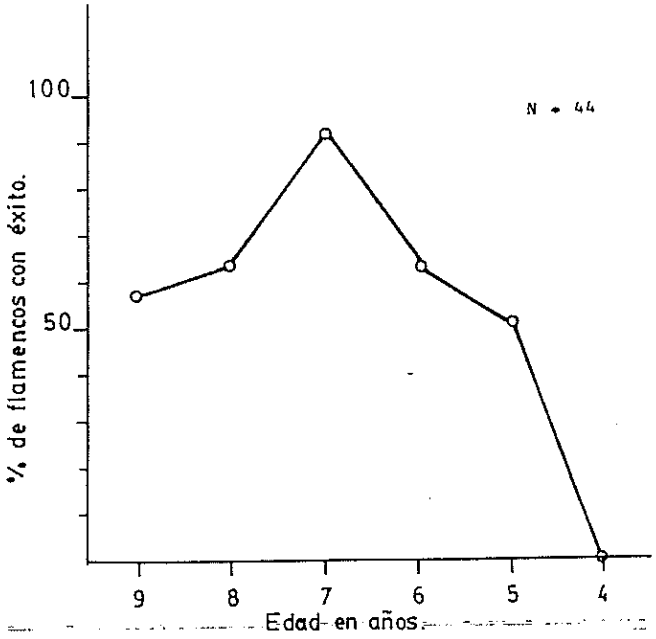


GRAFICO 3.

Han sido controlados 44 flamencos reproductores anillados, lo que representa el 34,1% del total de adultos observados con anilla en Fuente de Piedra. Las edades de estos flamencos, nos indican que el 86,4% de ellos tenían más de 6 años y sólo el 13,6% eran aves de 4 ó 5 años (gráfica 2). El éxito reproductor mayor se ha dado en pájaros de siete años, con un 91,7% (gráfica 3), siendo además el grupo de edad representado por más individuos anillados.

Es de destacar que el flamenco KAC recuperado en Camarga, de los efectos del frio en Enero de 1985 (Johnson 1985), este año ha nidificado con éxito en Fuente de Piedra.

SUMMARY.

The reproductive season in Fuente de Piedra started at the end of February 1986 and was once again successfull with around 3300 chicks on the wing from a total of 7,500 breeding pairs. The artificially supplying of water to the lagoon allowed complete rearing of the flamingo chicks. A total of 142 Camargue rings were read, 44 of which on nesting birds.

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Gráfico 1 : Porcentaje de flamencos observados con anillas DARVIC en la laguna de Enero a Junio, según edad.
Age distribution of DARVIC-ringed flamingos observed in Fuente de Piedra lagoon.

Gráfico 2 : Porcentaje de flamencos con anillas DARVIC que han sido observados como nidificantes, según adad.
Age distribution of DARVIC-ringed flamingos observed at nest.

Gráfica 3 : Exito de eclosion (%) de los huevos de parejas controladas y su relación con la edad del adulto anillado.
Age distribution of DARVIC-ringed flamingos producing chick.

ANILLAMIENTO DE FLAMENCO (Phoenicopterus ruber roseus) EN FUENTE DE PIEDRA (ESPAÑA). By M. Rendon.

Hasta el año 1985 tan sólo se habian anillado flamencos en Fuente de Piedra en tres ocasiones : 1964 : 9 y 1969: 45 (MUSEO CIENCIAS, MINIST. AGRIC. MADRID 6, SPAIN), 1977: 50 (UNIV. MALAGA ZOOLOGIA). En total suponen 104 anillas de metal, de las que sólo se ha recobrado una, en Mauritania, hasta la fecha.

A la vista de los escasos anillamientos relizados en Fuente de Piedra, la Agencia de Medio Ambiente de la Junta de Andalucía, como Organismo encargado de la gestion de la Reserva Integral de la Laguna de Fuente de Piedra, ha considerado imprescindible el iniciar un programa de anillamiento y marcaje de Flamencos con anillas DARVIC en esta colonia de reproducción.

Con el fin de diferenciar las anillas DARVIC de Fuente de Piedra de las usadas por Camarga, se han empleado anillas de color naranja con una banda de grosor mayor, al utilizado para los números y letras, entre los dos primeros elementos de la terna. Además estas se han colocado en la tibia izquierda y las de metal en la derecha.

El anillamiento se llevó a cabo el 25 de junio, contándose con la colaboración de : Estación Biológica de Doñana (CSIC), Camarga (Station Biologique de la Tour du Valat), Parque Nacional de Doñana (ICONA), Universidad de Málaga, etc. En total cien participantes.

Este año se han anillado 750 aves con anillas de metal, de los cuales 622 tambien con anillas DARVIC, de un total de 3.300 pollos. Estos marcajes nos permitiran estudiar aspectos aún desconocidos de la biología de la especie, imprescindibles a la hora de planificar la protección real del flamenco. De hecho la colaboración entre CAMARGA, DONANA, y FUENTE DE PIEDRA, permitirá en el futuro un mayor y más exacto conocimiento de la Población de Flamencos del Mediterráneo Occidental.

Manuel Rendón Martos
Biólogo Conservador de la Reserva Integral.
APARTADO DE CORREOS n 1
Fuente de Piedra - Málaga
España

CENSOS FEITOS AOS BANDOS DE FLAMINGOS NO ESTUARIO DO RIO TEJO (1980 / 1984)

Raul Carlos Bello de Serra Guedes,
com a colaboraçào de Gonçalo Corrêa.

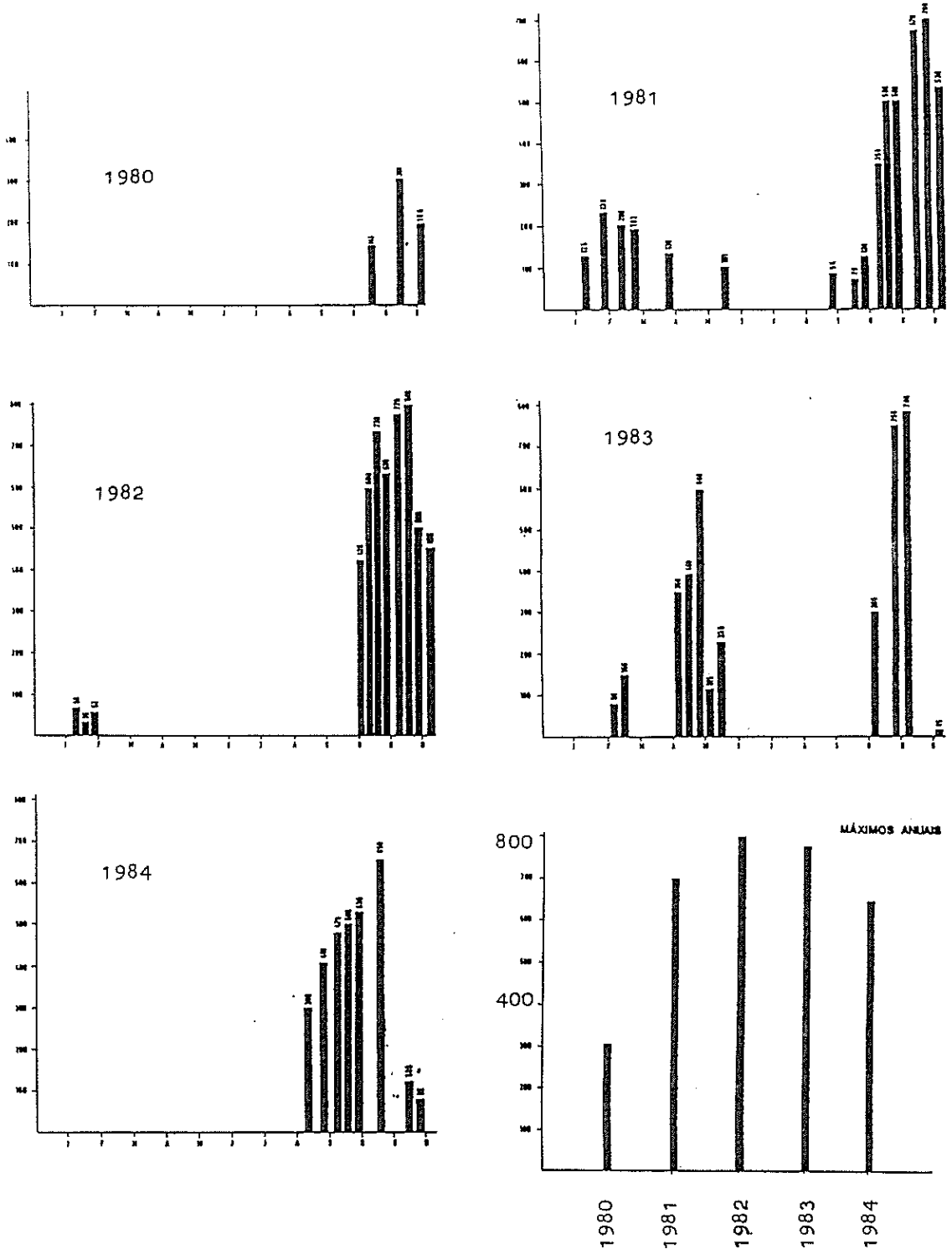
Iniciaram-se em 1980 os censos e contagens feitos aos bandos de flamingos durante a sua permanência no ESTUARIO do Tejo, quer durante a rota migratoria que leva as aves às costas da Mauritânia (Norte de Africa) durante os meses de Inverno quer quando voltam aos seus locais de nidificaçao (Marismas do Guadalquivir) "Coto Donaña" em Espanha, e Camargue no Sul de França.

Podemos concluir com as contagens feitas nos ultimos 4 anos que houve um aumento considerável de flamingos no Estuário do Tejo, e conquanto nao se possam tirar ainda conclusoes pois serao necessários mais nos de observaçoes e contagens. De registar que o número elevado de aves nos anos de 1981/1982 foram consequencia de grandes secas que assolaram a Peninsula Ibérica e muito especialmente o Coto Donaña onde durante os meses de Inverno destes anos quasi nao choveu, nao havendo portanto água nas zonas onde normalmente ha grandes concentraçoes de flamingos. O número de casais reprodutores aumentou consideravelmente nos ultimos anos tanto no Coto Donaña como na Camargue o que também pode justificar o maior número de aves que frequentam as lamas do Estuário do Tejo.

E curiosa a chegada dos flamingos, surgen primeiro as aves sub-adultas, depois as aves adultas e só no fim as aves jovens do ano, sendo estas também as ùltimas a deixarem o Estuário do Tejo em fins de Novembro de cada ano e dirigirem-se ao Norte de Africa onde passam o Iverno.

Continuarao durante mais alguns anos a serem feitos censos e contagens aos flamingos durante a sua permanência em Portugal nao no Estuário do Rio Tejo mas também em Castro Marim no Algarve onde igualmente sao observados durante a mesma época bandos de flamingos.

Com os gráficos anexos podemos observar quais as épocas do ano de maior ocorrência de bandos, quando começam a chegar e quando partem.

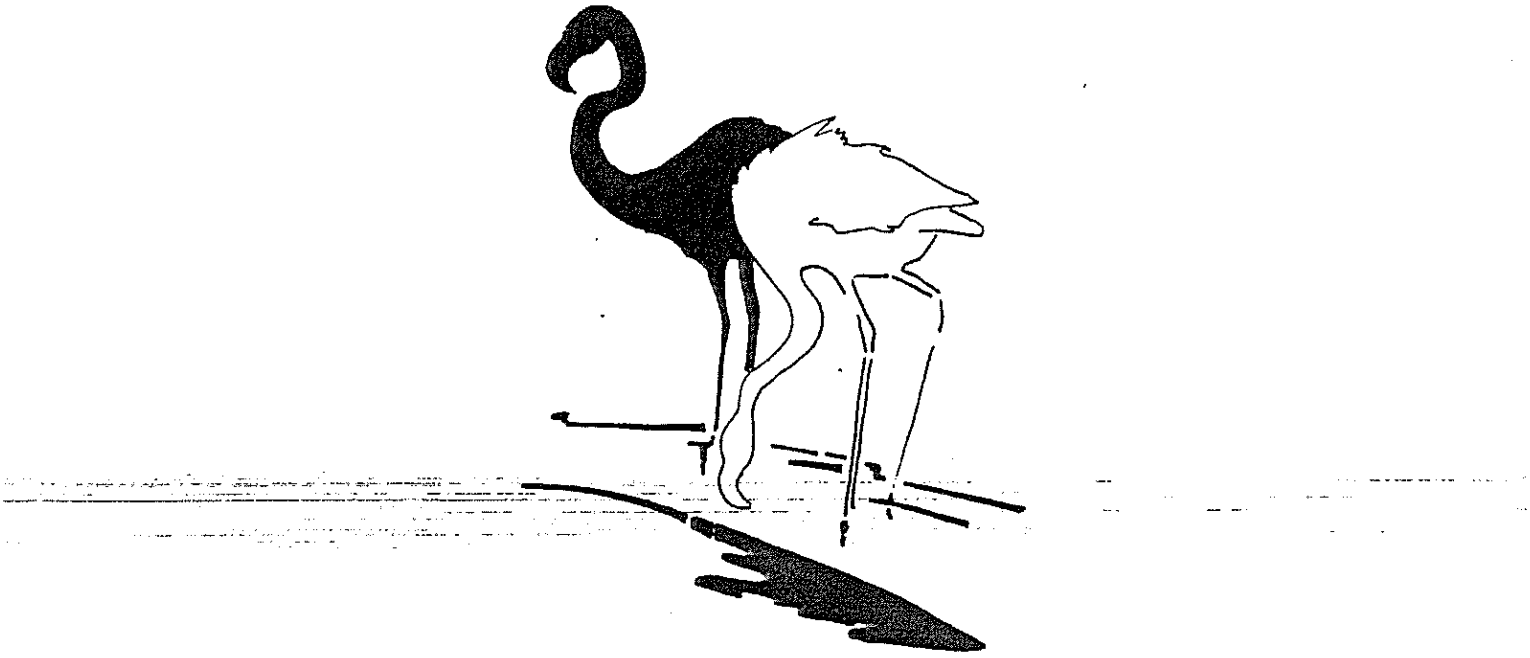


Counts of Greater Flamingos (Phoenicopterus ruber roseus) on the RESERVA NATURAL DO ESTUARIO DO TEJO (Portugal) 1980-1984

Summary

Flamingo counts on the Tejo Estuary, Portugal.

This paper gives results of Greater Flamingo counts made on the Tejo Estuary between 1980 and 1984. This is the most important wetland in Portugal for the species which also occurs at Castro Marim (Algarve).
Over the past 4 years there has been a considerable increase in the numbers of flamingos occurring on the estuary. This can generally be related to an increase in the numbers of flamingos which have been breeding in recent years in Spain and France whilst the very high numbers recorded in 1981-82 coincided with drought conditions in Andalucia.
The estuary is frequented by flamingos moving between Europe and North Africa. In autum, sub-adults arrive before the adults whilst the numbers of juveniles peak after the adults at the end of November.



GREATER FLAMINGOS NEST-BUILDING IN DUBAI CREEK.

by Mike Moser

Flamingos have not nested on the Arabian Peninsula since 1922, when a colony occurred on Rubiyan Island, Kuwait (Ticehurst et al. 1926). Flamingo colonies are usually established on islands in inland or coastal lagoons and breeding can take place only when water levels are suitable. A single exception is on the Banc d'Arguin (Mauritania) where colonies are established annually on sandy islands within the intertidal zone. I was therefore intrigued to find Flamingos attempting to nest on Dubai Creek during a visit to the United Arab Emirates in mid-March 1985.

Dubai Creek is a very sheltered 'estuarine' inlet from the Gulf with a tidal range of about 1.5m. At the time of my visit some 1700 Flamingos were present on the Creek of which 92% were adults. Although no rings were observed, it is likely that these birds originate from colonies either at Lake Rezieyeh (Iran) or the Rann of Kutch (India). The birds which were attempting to nest comprised about 350 adults which congregated each day on a very small part of the Creek; all were displaying intensively and frequent copulations were observed. At any one time up to 50 individuals were sitting on and building nesting mounds, although at each high tide these became submerged and partly destroyed. As the tide receded, the birds would return to the same mounds and start rebuilding again. Having 5 years experience of Flamingos breeding in the Camargue, I was convinced that this was a serious nesting attempt.

Shooting has recently been banned on Dubai Creek and this has resulted in a dramatic increase in the number of Flamingos using the area (only tens had been recorded prior to the shooting ban). Although the creek offers rich feeding for Flamingos there are no suitable breeding sites for them, since there are no islands; human disturbance above the high-water mark prohibits nesting there. As a result of these observations, a low sandy island was constructed during the summer of 1985, to attract a breeding colony. This has been furnished with a number of nesting mounds similar to those employed in the Camargue (Johnson 1983), in the hope that a successful breeding attempt will occur in the spring of 1986.

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(Author's address : BTO Beech Grove, Station Road, Trings (Herts.) HP23 5NR England)

THREE CASES OF LEAD-POISINING IN GREATER FLAMINGOS (Phoenicopterus ruber roseus) IN SOUTH-EASTERN FRANCE.

by P. BAYLE[1], F. DHERMAIN[2] & G. KECK[3]

The Etang de Berre is a brackish lake of approximately 160 km^2 situated halfway between the Camargue and the city of Marseille (Bouches-du-Rhône) and connected to the Mediterranean Sea via the canal de Caronte. Flamingos are regularly to be found on three sites along the eastern shore of this lake, the Etang de Bolmon, the Salin du Lion (now dis-used) and the Salin de Berre. The former of these is an important duck and coot (Fulica atra) hunting resort. Flamingo numbers vary from about 300 to over 1,000 birds which use the different sites according to disturbance/food availability.

Three of the birds which died figure in Table I. The death of the first of these was clearly attributable to lead poisoning and this lead us to look systematically for other cases. It was found lying in shallow water with wings slightly spread and the legs bent under the body. The neck was outstretched and the bird seemed to be drowning as it could not lift its head. This position looked much like the one described by Hovette (1972) in ducks suffering from lead poisoning. The bird died when picked up; it was then noticed that the tail feathers were stained with green droppings, another symptom of saturnism (Cooper & Eley, 1979). This green staining around the cloaca was also noted on the other two birds.

A necropsy was performed the same day. The bird was emaciated with a total loss of fatty tissues and an atrophy of the pectoral muscles. There were 21 small pebbles and one shot-gun pellet in the stomach. The presence of the latter supported the hypothesis of a possible case of saturnism. We therefore extracted the liver and kidneys and sent them to the Toxicology Laboratory of the Ecole Nationale Vétérinaire, Lyons, for analysis (as was done also for the other two birds). In this first instance the load of lead was extremely high. The two other birds carried lower concentrations (Table II) and had no shot in the gizzard.

Saturnism, due to the ingestion of lead pellets as grit, is quite common today among Holarctic waterfowl. It has been described in particular by Hoffmann (1960) among ducks in the Camargue where Mallard Anas platyrhynchos, Teal Anas crecca and Tufted duck Aythya fuligula are the most exposed species. More recently lead-poisoning among ducks has been studied in another heavily hunted area of France, The Dombes (Cordel-Boudard, 1983). This author sets the level of acute saturnism in ducks at above 10 ppm in the liver fresh wt. In Denmark Clausen & Wolstrup (1979) found Mallard and Mute swan Cygnus olor to be frequently affected; they evaluated birds as being lead-poisoned when lead concentration in either liver of kidney exceeded 7 ppm fresh wt. Saturnism has also been recorded among other birds, especially raptors; Gretz & Bayle (1983/84) revised the known cases of lead-poisoning in Falconiforms and

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(3) Ecole Nationale Vétérinaire, Laboratoire de Toxicologie, B.P. 31 F-69752 CHARBONNIERES Cédex.

N°	Sex and approximate age	Locality of recovery	Date	Conditions of recovery
1	♀ subadult	MARIGNANE Salin du Lion	16.06.84	found by P.B. et al., drowning in ca. 5 cm water in former saltworks died upon recovery.
2	♀ juvenile	MARIGNANE Etang de Bolmon	23.02.86	found by F. & M. D., dead on the beach (Plage du Jai).
3	♀ adult	MARSEILLE Plage du Prado	7.03.86	found by Société Protectrice des Animaux, agonizing on the beach and harassed by Larus cachinnans; died the next day.

Table I : Data on the recovery of three Greater flamingos Phoenicopterus ruber roseus in the area of Marseille and of the Etang de Berre (Bouches-du-Rhône, France).

N°	Lead level in liver (ppm)*	Lead level in kidneys (ppm)*
1	223.0	57.0
2	17.0	21.3
3	10.2	6.5

* dry wt.

Table II. Lead concentrations in liver and kidneys of three Greater flamingos Phoenicopterus ruber roseus recovered in the area of Marseille and of the Etang de Berre (Bouches-du-Rhône, France). Analyses (by atomic absorption spectrometry) carried out by the Laboratoire de Toxicologie of the Ecole Nationale Vétérinaire de Lyon.

came to the conclusion that a concentration of 3 ppm fresh wt. of lead in both liver and kidneys was accompanied by severe organic disorders.

All these examples show without doubt that the three Flamingos found either on the shores of the Etang de Berre or in Marseille (the latter very probably originating from the same population as the former) all died of lead-poisoning: the lead concentrations found in their organs are well above the highest figure given by any of the authors as the level of acute saturnism, especially when we consider that their measurements are all expressed as ppm fresh wt. whilst ours are ppm dry wt. It is surprising that the cases described here are the first concerning Flamingos. In very heavily hunted areas such as the Camargue and the Etang de Berre it must be expected that Greater flamingos often ingest pellets and use them as grit. They are thus likely to suffer from lead-poisoning in the same way as ducks. Similar cases, should they be looked for, could certainly be found.

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NEWS FROM THE REGIONS (NEW WORLD)
(Compiled by Bart de Boer)

BAHAMAS. (corr. A. Sprunt)

A very short note on the Bahamas-population. In 1984 the flamingo colony was disturbed by wild hogs and flooding and produced no significant number of young. In 1985 the birds started nesting late due to dry weather. The results of this breeding effort are still unknown. Generally the Bahamian situation is still excellent.

REPUBLICA DOMINICANA. (corr. Tomas A. Vargas Mora)

Estimo la población en alrededor 2000 ejemplares. Se encuentran en lago y lagunas, costeras o del interior, de agua dulce o salada. Sus poblaciones estan restringidas a la parte suroeste del país. Los efectos de la cacería ilegal sobre esta especie son minimos. Una amenaza sobre esta especie consiste en le derivación de las aguas que nutren ambientes donde ellos viven hacia otros lugares con fines agrícolas. Esta especie no se encuentra especialmente amenazada por lo que los esfuerzos en favor de ella se dirigen hacia su proteccibn

CUBA. (corr. Orlando H. Garrido)

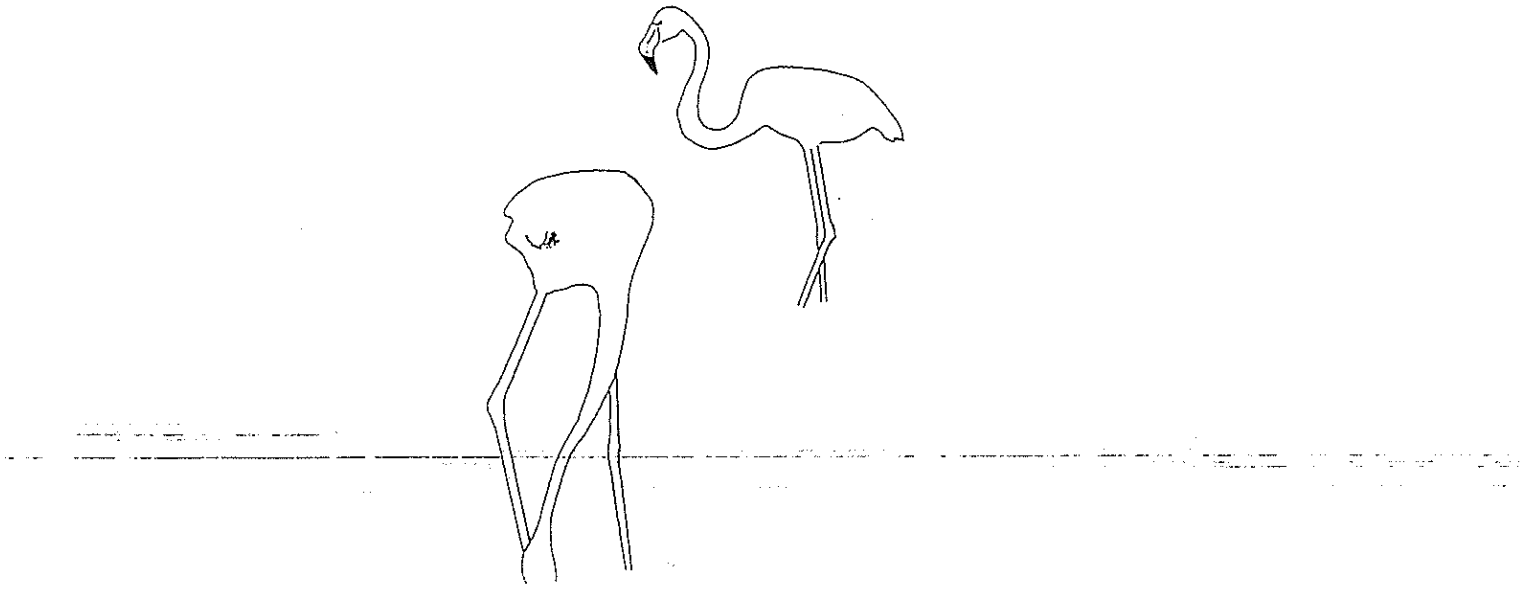
Las poblaciones de flamencos no han sido estudiadas en Cuba. Si bien esta especie esta protegida por las leyes de caza, en determinadas areas alejadas existen irresponsables que furtivamente cazan estas aves para comer. No solo los adultos sino en ocasiones se llevan los pichones. Esto era mucho mas arraigado en otras épocas, pero actualmente con la adición y incremente de guardas forestales se hace cada vez mas difícil. No obstante, en zonas de la región oriental (Birama, Manzanillo) todavía se enfrentan dificultades en este aspecto. Cuando se instituya un programa nacional sobre el flamenco para su estudio y conservación creo que ayudará grandemente a erradicar estas capturas fortuitas.
En general las poblaciones, aunque no se han hecho censos, han incrementado por lo que se puede apreciar. Algunas colonias son muy numerosas como las de Cayo Coco. Como no se han hecho estudio no se sabe los movimientos que realiza dentro de la Isla y si incluso reciben individuos periodicamiente de poblaciones extranjeras. Aunque esto es objetivo, ya que me han llegado dos anillos de individuos que fueron anillados en el extranjero (posiblemente en las Bahamas). No sabemos si las grandes colonias que pasan el invierno en ciertos sitios (por ejemplo Cienega de Zapata) son miembros de una misma o de varias. En nuestro territorio existen areas donde los flamencos están ahí todo el año y incluso crían. En otros lugares solo están en el area en determinada epoca y luego desaparecen (aunque no sabemos si se retiran a zonas mas alejadas o se van a otra, pero esto no se ha podido determinar).

Tanpoco se ha hecho censos. No obstante, en Zapata contemos una vez con contador japone unas 3000 flamencos. La colonia de Cayo Coco tiene que tener sobre 25.000. Las de Birama son muy numerosas. Hace anos criaban en Tunas e Zazas, pero ahora no se han vuelto a localizar criando. Hay una pequeña colonia criando en Itabo, Matanzas, asi como en Nuevitas, Santa Lucia etc.

Sr. Garrido participa que hay oportunidád para estudiar los flamencos en Cuba. Sin embargo, el gobierno de Cuba no tiene fundos para financiar estudios hecho para extranjeros, pero grupos o personas que ya disponen de fundos conseguirán toda cooperacion. Para mas informes escribe a :

Comandante Univenso Sanchez
Direccion Nacional de Flora y Fauna
Ministerio del Transporte
Tulipan y Boyenos
Habana, Cuba.

It is possible to study flamingos on Cuba. However, as the Cuban government does not have funds available for this, any groups or persons wanting to carry out studies should have their own funding. For more information write to the address given above.



THE AMERICAN FLAMINGO IN HAITI : AERIAL SURVEYS AND REVIEW OF STATUS.

(**Jose A. Ottenwalder**. Parque Zoologico Nacional and Museo Nacional de Historia Natural, Santo Domingo, Republica Dominicana; Present address : Florida State Museum and Department of Wildlife and Range Sciences, University of Florida, Gainesville, FL 32611; **Charles A. Woods**, Florida State Museum, Gainesville).

There has been little information on the status and distribution of the American flamingo in Haiti since the account given by Wetmore and Swales (1931) covering the first third of the current century. During early May 1982 and 1983 we conducted aerial surveys along the entire coastline of Haiti, including offshore islands, to census populations of several wildlife species. Inland lakes and lagoons were not covered in the surveys.
The results of our observations on flamingos are summarized in Table 1.

During these surveys, flamingos were found in only three areas: a/ Ile de la Gonave, b/ on the west coast between grande Saline and Gonaives, and c/ Ile de la Tortue. Historically, Gonave Island, and the extensive coastal mangrove swamps stretching from the mouth of the Artibonite River to the Baie des Gonaives were apparently very important feeding, roosting, and probably also nesting sites for flamingos in Haiti.

Birds were also observed on a small brackish lagoon on the south coast of Ile de la Tortue. This is the first report of their occurrence on that island. Although the Cul-de-Sac region was not included in our surveys recent observations on numbers and distribution of flamingos on the lakes of Etang Saumatre and Trou Caiman have been obtained by other observers (J.O. Keith, J.B. Thorbjarnarson, and R. Frantz, pers.comm.). The Cul-de-Sac region, Gonave Island and the coastal areas around Gonaives, have been and apparently remain the major areas used by flamingos in Haiti.

A total of 695 birds were seen in May 1982 and about 285 in May 1983. The observed distribution of birds by major coastal areas during the 1982 and 1983 surveys (Table 1) was respectively : Gonave Island, 37 (5.3%) and 53 (18.6%); west coast combined (including coastal areas influenced by the flood-plain and delta of the Artibonite River, and the three localities on the Plaine de l'Arbre, since we considered the latter as a subset of the Grande Saline-Gonaives populations), 645 (92.8%) and 182 (63.8%); Tortue Island, 13 (1.8%) and 50 (17.5%).

Although our observations suggest that there were about 400 more flamingos present along the Haitian coasts during May 1982, the difference between years might be a reflection of the discontinuous movement patterns of flamingos due to specialized habitat requirements, or presumably, differences in aerial survey techniques.

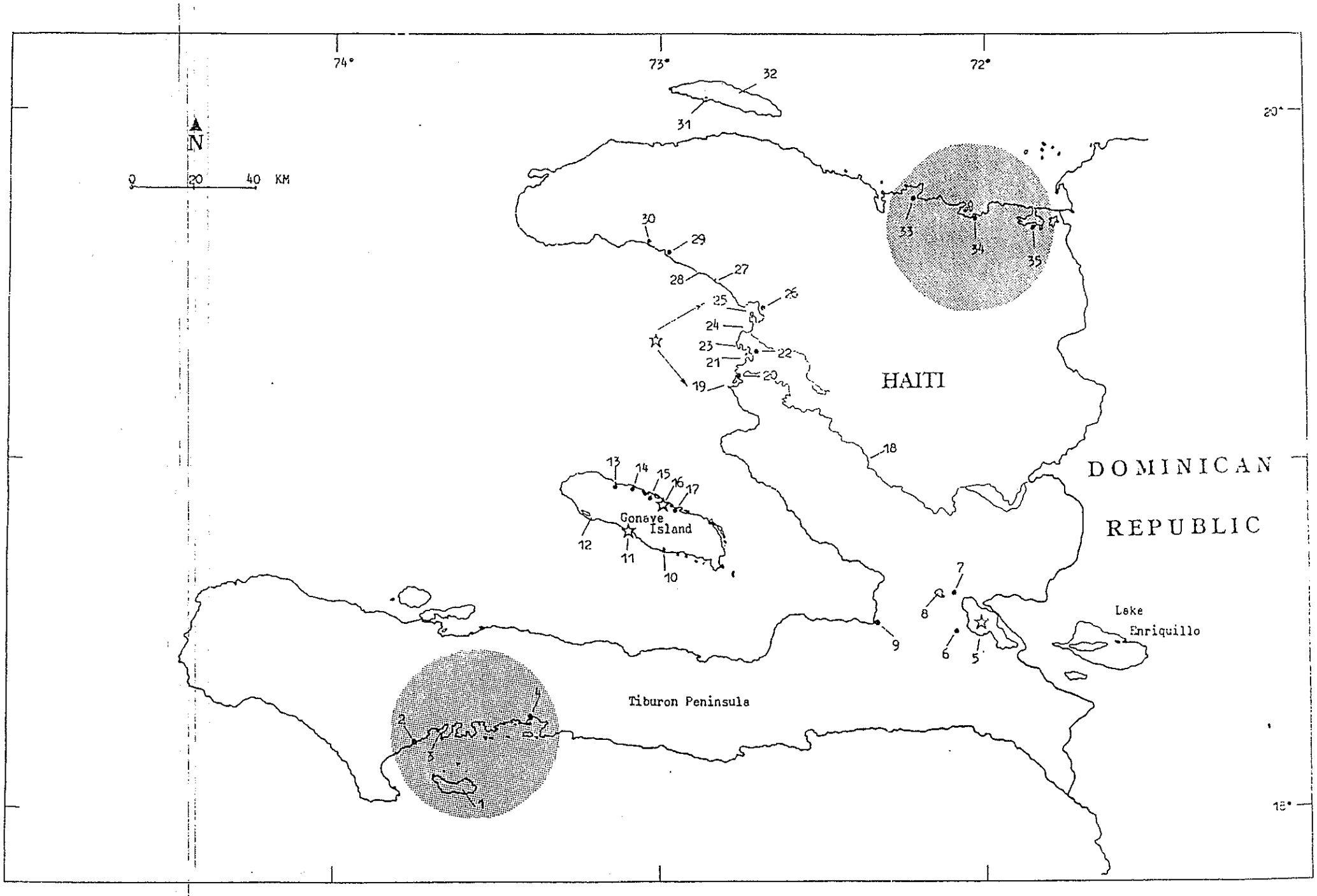

74°
73°
72°
20°
18°
N
0
20
40 KM
HAITI
DOMINICAN
REPUBLIC
Gonave
Island
Tiburon Peninsula
Lake
Enriquillo
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TABLE 1. American flamingo observations in Haiti during coastal aerial surveys in May 1982 and 1983.

GENERAL AREA / LOCATION	NUMBER OF BIRDS * 10-12 MAY1982	6-7 MAY1983
Gonave Island		
Pointe Pierrot	16	50
Gros Mangle	3	
La Cayenne	5	
Gran Lagon	13	1
Pointes à Roquettes		2
Grande Saline - Gonaives		
Lagoon south of Grande Saline	215 (180-240)	20
Lagoon north of Grande Saline	165 (145-190)	
Baie de Grande Pierre	25	90
Pointe de la Grande Pierre	240 (175-280)	
Baie de La Tortue-Baie de Gonaives		65(50-80)
Plaine de l'Arbre		
L'Etang		2
Pointe Coridon		2
Petit Port à Piment		3
Tortue Island		
Lagoon at Trou Vasseux	13	50
TOTAL	695	285

* Numbers represent averages of estimates by two or more observers.

The 1982 surveys were primarily for manatees and were flown at an altitude of 150-300 m. In contrast, the 1983 surveys, which were to find sea turtle crawls on nesting beaches, were flown at an altitude of 50-125 m along the coast. We believe that the lower elevation at which the 1983 surveys were flown, in combination with the visual barrier represented by the dense mangrove forests where flamingos are found between Grande Saline and Gonaives, minimized chances for flamingo observations in 1983.

Based on the aerial survey data, reports from inland habitats and our observations of seasonal changes in flamingo numbers in the Dominican Republic, we estimate the population in Haiti to range between 300-1,500 birds during most of the year, but increasing to as many as 1,000-3,000 in winter. The latter estimate is expected to fluctuate from year to year in relation to the number of young produced in the Great Inagua colony.

The nesting status of flamingos in Haiti at present is still uncertain, as we failed to find any evidence of nesting there. However, the apparent absence of nesting effort might reflect also the lack of ornithological exploration in Haiti. There exists the possibility that small breeding colonies have gone undetected, as was the case in the Dominican Republic (Wiley and Wiley, 1979; JAO pers. obser.).

Additional studies are needed to improve present knowledge on population and breeding status. Further effort should include a combination of aerial and ground surveys. However we consider as a conservation priority a genuine commitment by the Haitian government to offer legal protection to flamingos and to conduct educational campaigns to stop hunting of birds.

A detailed report on the status of flamingos in Haiti is being prepared to be presented to the Haitian authorities. We thank Dr. James O. Keith for providing information and useful comments.

SUMMARY

Numbers: 500-3,000 birds, based on preliminary estimates.
Recent observed distribution : sites 5 to 32. Numbers refer to localities indicated in Fig.1.
Possible deserted areas: sites 1-4 and 33-35 (Fig.1), which represent localities associated with high human densities (with the exception of Caracol). Although only historical records are known from these areas, lack of recent data might be a reflection of the insufficiency of studies, and flamingos might still occur there in small numbers.

Nesting status : Presumably breeding colonies existed historically in the Lake Etang Saumatre (5), Gonave Island (11,16), and in the Grande Saline - Gonaives coastal lagoons (19-26). There is no evidence of recent nesting anywhere in Haiti.

Legal status : not protected.

Threats : human pressure e.g. hunting for food and commercial trade, some habitat modification, and disturbance due to decreasing isolation of previously remote areas caused by a rapidly expanding human population.

Literature cited

Wetmore, A., and B.H. Swales. 1931. The birds of Haiti and the Dominican Republic. U.S. Natl. Mus. Bull. 155.

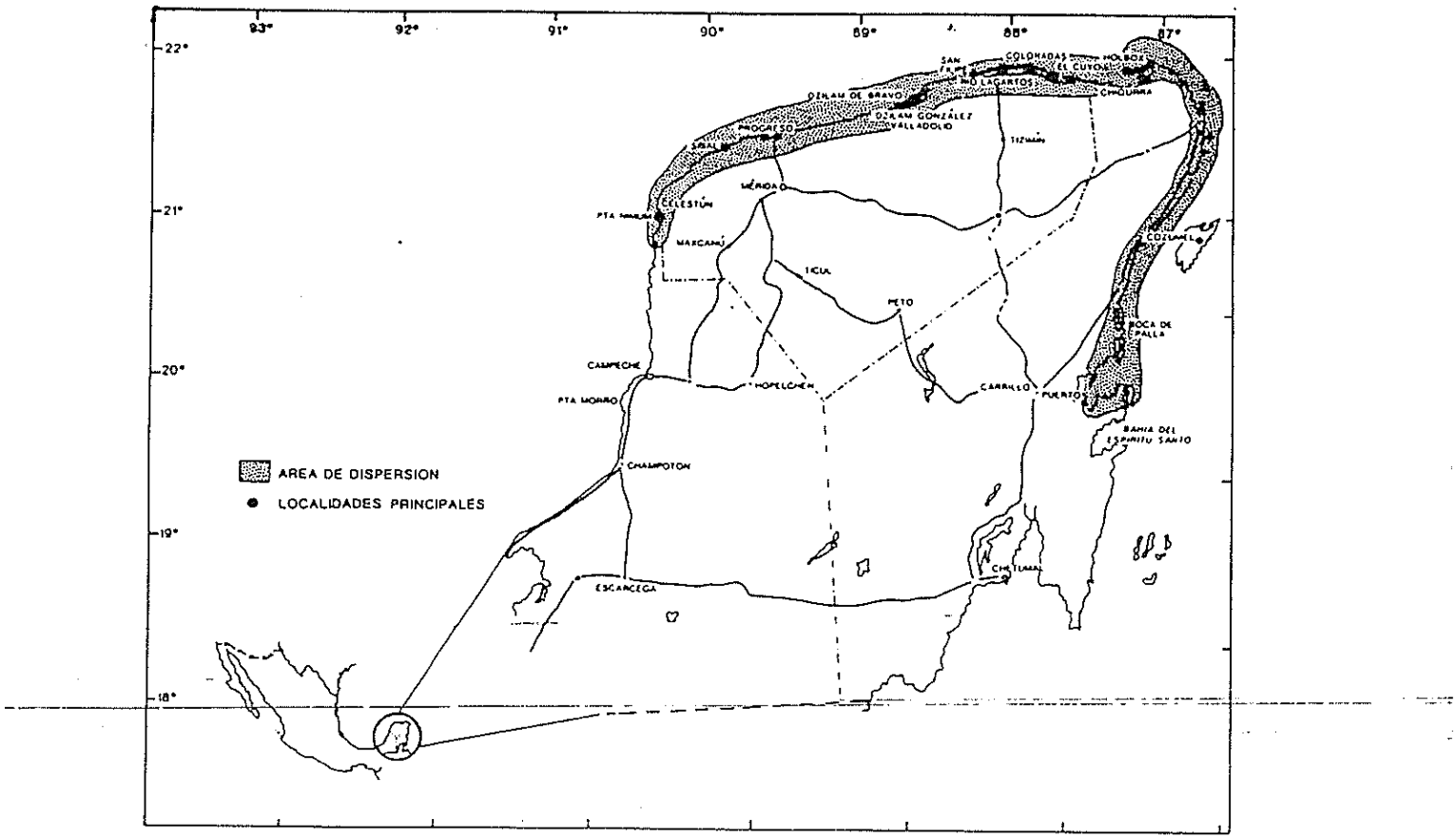
Wiley, J.W., and B.N. Wiley. 1979. Status of the American Flamingo in the Dominican Republic and Eastern Haiti. Auk 96: 615-619.

Figure 1 . Map of Haiti showing locations of historical and recent flamingo sites. Shaded circles indicate areas with no recent records. Historical nesting sites are represented by stars. Numbers : 1. Ile à Vache, 2. Les Cayes, 3. Baie des Flamands, 4. Aquin, 5. Etang Saumatre, 6. Ganthier, 7. Thomazeau, 8. Trou Caiman, 9. Port-au-Prince, 10. Pointes à Raquettes, 11. Trou Louis, 12. Pointe Pierrot, 13. Gros Mangle, 14. Richard, 15. La Cayenne, 16. Gran Lagon, 17. Etroits, 18. Riviere Artibonite, 19. Pointe des Flamands, 20. Grande Saline, 21. Baie de Grande Pierre, 22. Desdunes, 23. Pointe de la Grande Pierre, 24. Baie de Tortue, 25. Baie des Gonaives, 26. Gonaives, 27. L'Etang, 28. Pointe Coridon, 29. Port à Pimment, 30. Anse Rouge, 31. Trou Vasseaux, 32. Ile de la Tortue, 33. Cap-Haitien, 34. Caracol, 35. Fort Liberte.

MEXICO.

Dr. A. Sprunt from the Audubon Society visited the Yucatan this summer. He visited the flamingo area with Antonio Rogel Bahena. From his letter to SEDUE I extracted the following notes :

The flamingos had a very successful reproductive season in 1985. However, several threats exist to their survival in this area. Fishermen of El Cuyo have proposed to breach the beach ridge and allow fresh seawater to enter the Rio Lagartos lagoon. Such a break would severely upset the ecology of the lagoon and probably ruin it as a feeding area for the flamingos. Dr. Sprunt pointed out that this even may eliminate flamingo nesting in the Yucatan entirely. The expansion of the existing salt plant also poses problems. Expansion is still possible but preferably only to the west and on the south side of the lagoon. There exist plans to build a road for the salt company which would block off the lagoon, with serious damage to its ecology. Dr. Sprunt suggested to construct a bridge instead. A road has been constructed already to the lagoon west of Punta Mecco, an important breeeding site for the flamingos. This road may cause human disturbance at this site. Dr. Sprunt suggested eliminating this road entirely. Dr. Sprunt brought all these suggestions to the attention of Ing. Manuel D'Argence Garcia, as representative of SEDUE.



Distribucion en Mexico del flamenco

VENEZUELA and BONAIRE (Neth. Antilles).

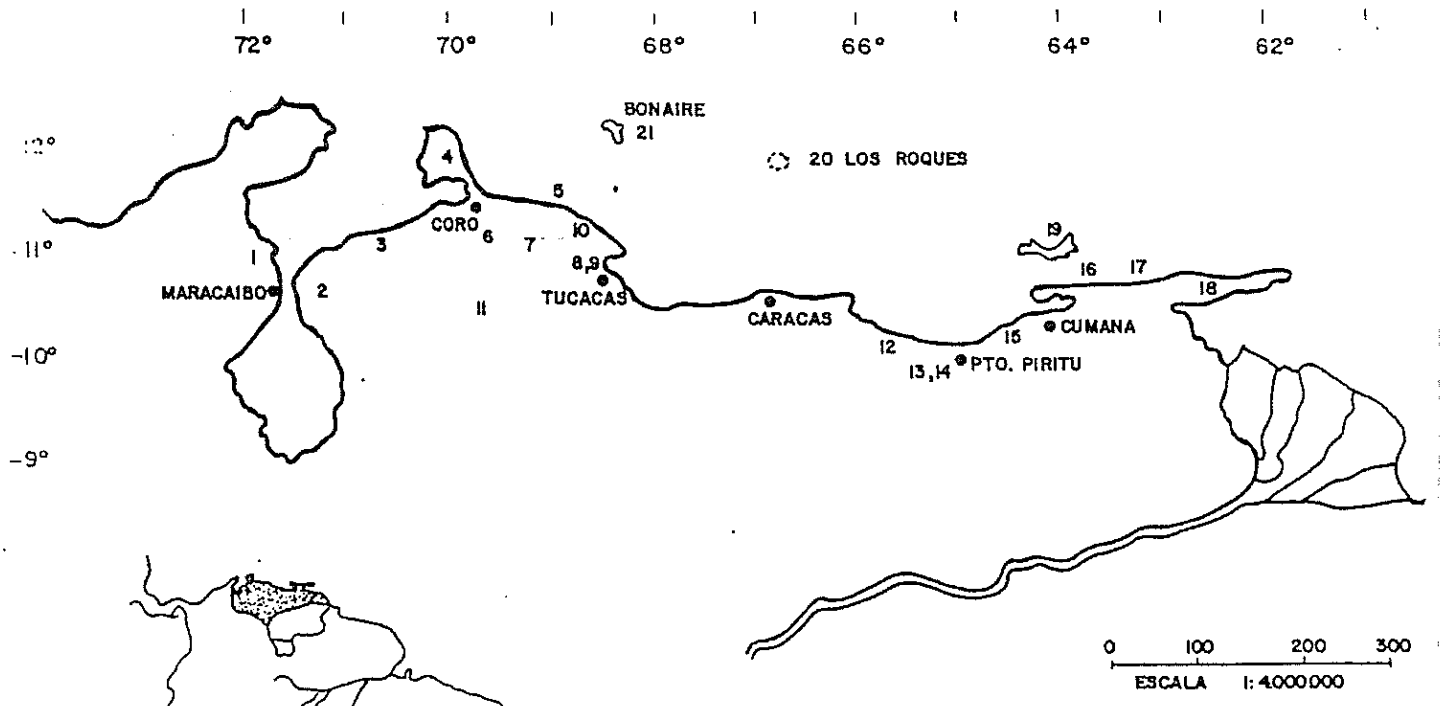
The flamingos residing along the coast of Venezuela and on Bonaire belong to the same population. There is now close cooperation between scientists and birdwatchers in the two countries in monitoring this population. On Bonaire Frater Candidus is checking out the flamingos monthly. He collects data on numbers, breeding and mortality. He reports that the last couple of years have been very successful for the flamingos. Before 1980 a year in which the flamingos bred once was considered successful. Breeding twice a year was considered an exception. However, after 1980 it seems to have become the rule for the flamingos to breed twice a year. Besides, in the years from 1977 to 1980 very few juveniles were raised due to a long period of drought. After 1980 followed a few very wet years and this resulted in large numbers of chicks raised by the flamingos. The following table sums up the breeding results as collected by de Boer (up to 1980) and Frater Candidus (thereafter).

Breeding period	Pairs	Number of chicks hatched
Nov 75/Mar 76	3000	3000
Dec 76/Jan 77	500	250
Dec 77/Jan 78	400	60
Jan 79	400	120
Jul 79/Sep 79	600	600
Nov 79/Mar 80	3500	3500, high post-hatching mortality
Nov 80/Feb 81	2500	2500
May 81/Oct 81	2500	2500
Nov 81/Feb 82	2500	2500
Jun 82/Sep 82	600	600
Jul 83/Sep 83	400	250
Jun 84/Sep 84	2000	1000
Nov 84/Mar 85	?	2000

In Venezuela there exists considerable interest in the flamingo population. The nature conservation organisations there and especially FUDENA and AUDUBON VENEZUELA try to get a Coastal Conservation Campaign launched to preserve the coastal wetlands. Part of this CCC would include the preservation of the flamingo habitat. There are several scientific investigations going now. Dr. Stuart Strahl from the Universidad Simon Bolivar directs a project aimed at monitoring the fluctuations in numbers in the population and trying to determine the causes for this. The investigations are being carried out by students working under Dr. Clark Cassler from the Universidad de Zulia in Maracaibo. They are doing an investigation into the food situation in Los Olivitos a 20.000 ha wetland near Maracaibo where thousands of flamingos have been counted.

The Universidad de Oriente (Dr. José Rodriguez) and the Université of Montreal (Dr. Raymond McNeil) are cooperating in a project to determine the ecological quality of the coastal wetlands. One of the key species will be the flamingo. Thanks to the efforts of Mary Lou Goodwin (Audubon) there exists a splendid cooperation between these groups.

Miguel Lentino has done some aerial surveys which resulted in counts far higher than previously thought. His data and the localities where he found the flamingos are shown in the following table and map.



LOCALIDADES EN QUE SE HAN SEÑALADO P. RUBER

1 SINAMAICA
2 LOS OLIVITOS
3 ZAZARIDA
4 ADICORA
5 SALINA DE SAUCA
6 EMBALSE EL ISIRO
7 CIENAGA DE TACARIGUA
8 EMBALSE DE TACARIGUA
9 CHICHIRIVICHE
10 S. JUAN DE LOS CAYOS
11 REPRESA DE SIQUISIQUE
12 LAGUNA DE TACARIGUA
13 LAGUNA DE UNARE
14 LAGUNA DE PIRITU
15 LOS MESONES
16 CHACOPATA
17 CARUPANO
18 IRAPA
19 LAGUNA LA RESTINGA
20 ARCHIPIELAGO LOS ROQUES
21 ISLA DE BONAIRE

CENSOS DE FLAMENCOS A LO LARGO DE LA COSTA VENEZOLANA

LOCALIDAD		3-81 (2)	2-82 (2)	1-83 (3)	2-83	7-83 (5)	11-83	5-84	10-84
ZULIA	SINAMAICA	- (1)	-	-	-	2495	-	-	65
ZULIA	LOS OLIVITOS	-	-	4719	4600 (4)	4777	-	0	3264
FALCON	ZAZARIDA	3	-	28	-	-	-	0	0
FALCON	ADICORA	-	2150	198	-	470	-	0	300
FALCON	ISIRO	-	-	-	-	-	-	2548	393
FALCON	SAUCE	400	430	542	-	82	-	0	166
FALCON	CIENAGA DE TACARIGUA	-	-	-	-	-	-	0	0
FALCON	S. JUAN DE LOS CAYOS	-	-	-	-	-	-	0	804
FALCON	EMBALSE DE TACARIGUA	-	-	-	-	-	-	375	0
FALCON	CHICHIRIVICHE	3500	1800	5402	-	223	3000	0	1247
LARA	SIQUISIQUI	-	-	-	-	151	-	-	-
MIRANDA	LAGUNA DE TACARIGUA	-	-	180	-	225	-	2052	65
ANZOATEGUI	LAGUNA DE UNARE	-	-	631	400	5626	600	471	2656
ANZOATEGUI	LAGUNA DE PIRITU	5000	1100	3244	-	-	4500	3462	3818
ANZOATEGUI	LOS MESONES	-	-	400	-	-	-	0	0
SUCRE	CHACOPATA	1400	430	1047	2000	1301	-	889	1042
SUCRE	CARUPANO	-	-	247	-	-	-	-	0
SUCRE	IRAPA	-	-	42	-	-	-	-	-
MARGARITA	LA RESTINGA	-	-	155	-	-	-	0	0
D. FEDRL.	LOS ROQUES	-	-	-	-	50	-	-	-
BONAIRE		-	4422	-	1518	-	1611	4376	1845
TOTAL		10303	10332	16835		15400		14173	15666

(1) INFORMACION DESCONOCIDA. (2) G.MORRISON (3) G.GUZMAN (4)C.CASLER Y J.LIRA (1979) (5) C.RAMO Y B.BUSTO (1984)

ARGENTINA.

Como parte 24 en una seria sobre la Fauna de Argentina, Pablo Canevari escritb una negociación excellente sobre el flamenco común (Phoenicopterus chilensis) El siguiente tome prestada de esto articulo.
Los flamencos habitan desde aproximadamente los 4000m de altura hasta el nivel del mar, preferentemente en lagunas abiertas, con aguas someras y salobres.
De las tres especies que se encuentran en Argentina, el flamenco común es el que tiene una distribución mas amplia, nidificando en el altiplano de Jujuy, Salta y Catamarca, y también en ciertas zonas de Córdoba, Santa Fe, Buenos Aires y la Patagonia. En los salares temporalmente inundados y las lagunas semipermanentes de aguas salobres de la puna, las tres especies comparten su hábitat con una variada avifauna integrada por diversos patos. Aunque la mayor parte de estos ambientes carecen de vegetación emergente, poseen en cambio, una rica flora de plantas sumergidas y algas microscópicas que sirven de alimento a los flamencos directamente o a los microorganismos de los cuales se alimentan. La laguna de Pozuelos en la provincia de Jujuy, cuenta habitualmente con una población de alrededor de 25000 ejemplares de flamencos, en sus tres especies. En la regibn central del pais un lugar muy frecuentado por el flamenco común es la laguna de Mar Chiquita al noreste de la provincia de Córdoba. En años favorables, el Doctor Bucher ha censado allí alrededor de 70.000 individuos agrupados en grandes colonias de cría. Tambien en las lagunas de la Patagonia se dan condiciones adecuadas para la permanencia y nidificación de los flamencos.

Amenazas :

En la puna, tanto los huevos como los pichones son alimento del carancho blanco y la gaviota serrana fundamentalmente, y en el resto des país, del carancho y de la gaviota cocinera entre otros. Desde tiempos remotos los aborígines de la puna realizan periódicas recolecciones de los huevos des estas y otras aves acuaticas, hecho que, sin embargo, no parece afectar significativamente a las poblaciones. Hay otras causas importantes de mortandad : en la laguna de Puzuelos una violente granizada mató a mas de cien ejemplares de flamencos de los tres especies, mientras que la sequía acabb con gran cantidad de pichones de flamenco común nacidos en el lugar. En la Argentina, a raíz de las transformaciones del medio producidas por el hombre, fundamentalmente en la zona de la pampa húmeda, el flamenco común ha visto disminuida su zona de nidificacibn y de alimentación. Asimismo hay que senalar que existe en nuestro pais un importante comercio con esta especie, que se vends a los zoológicos de todo el mundo. Sin embargo, y aunque se carece de evaluaciones presisas del estado real de la poblacion, las estimaciones locales coinciden en afirmar que el número de ejemplares sigue siendo significativo.

BREVE DESCRIPTION DEL PROYECTO "CONSERVACION DE FLAMENCOS EN EL NORTE DE CHILE"

Dr. Alphonso A. GLADE

La Corporación Nacional Forestal (CONAF) administra 73 Areas Silvestres Protegidas de Chile (Parques Nacionales, Reservas Nacionales y Monumentos Naturales) que abarcan 13.000.000 de ha, lo que representa el 17% de la superficie continental del país. Dentro de sus labores están la conservación y manejo de la fauna que vive dentro de estas unidades y en un futuro cercano, también velará por toda la fauna terrestre de Chile.

Desde Enero de 1984 se cuenta con la valiosa cooperación de la New York Zoological Society (NYZS) en la implentación del proyecto denominado "Conservación de flamencos en el norte de Chile".

El habitat de los flamencos soporta actualmente una gran presión por parte de las empresas mineras, lo cual pone en grave peligro la reproducción de las especies. En forma paralela, la colecta de huevos por pobladores altoandinos provoca alteraciones en el proceso reproductivo, que se ha traducido en una declinación evidente de las poblaciones de flamencos en el altiplano chileno.

Las Regiones I de Tarapacá, II de Antofagasta y III de Atacama son las únicas zonas en Chile donde conviven 3 especies de flamencos o "parinas" (en aymará), las cuales nidifican en diversos salares.

Los objetivos del proyecto son 7 :

1. Desarrollar experiencia técnica para la conservación y manejo del habitat de los flamencos en el norte de Chile y países vecinos.

2. Estimar la población de Phoenicopterus chilensis, Phoenicoparrus andinus y Phoenicoparrus jamesi en el norte de Chile.

3. Ubicar las áreas de nidificación actualmente existentes, cuantificando el proceso reproductivo en todas o en la mayoría de las colonias.

4. Identificar las presiones que soportan los flamencos en su habitat por parte del hombre.

5. Investigar los aspectos climáticos, biológicos, físicos y químicos del habitat que regulan la presencia y reproducción de cada especie.

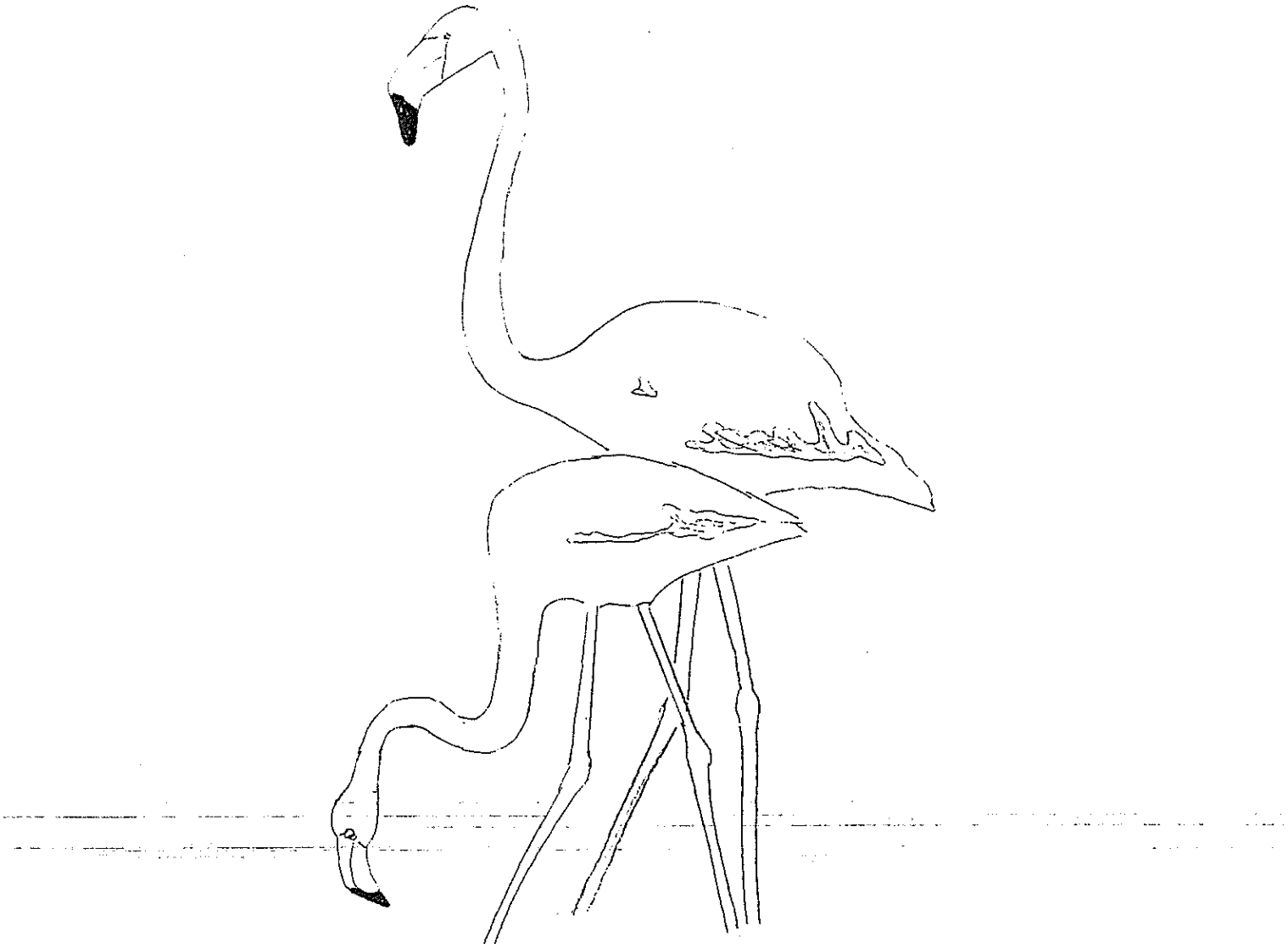
6. Aumentar los conocimientos sobre la ecología, biología y comportamiento de las parinas.

7. Probar y desarollar métodos de censo para flamencos, adecuados a las condiciones ambientales y de habitat en los Andes.

El convenio CONAF/NYZS estipula también la visita de un experto internacional una vez al año, para evaluar la marcha de las actividades.

Este proyecto de fauna está considerado de gran envergadura, ya que involucra recursos humanos, técnicos y financieros de 3 Oficinas Regionales, de la Oficina Central de CONAF y a una institución extranjera de mucho prestigio.

Se prevee tener resultados preliminares en Abril-Mayo de 1986, los que permitirán determinar el rumbo a seguir del proyecto, luego de terminado este primer período de 20 meses.



SOME NOTEWORTHY RECOVERIES - SIGHTINGS

Ring	Date	Age	Locality
White plastic CRH	02.08.1978	pull	Camargue, FRANCE 43 25'N, 04 38'E
- resighted	02.11.82		Sta. Olalla, Marismas Doñana Nat. Park, (Huelva) SPAIN
- found dead	18.01.85		Venaco (Corte), CORSICA 42 14'N, 09 10'E

This is the first recovery in Corsica of a ringed flamingo. It was found at an altitude of c.200m. and was displaced along with hundreds of other flamingos during a spell of exceptionally cold weather in western Europe (See F.W.G. Special Report N 2).
On this occasion 155 rings were recovered in the south of France, all birds having been ringed as chicks in the Camargue. Seven of these were over 27 yrs. old and two of them constitute longevity records for this species in the wild :

Paris CD 752	01.08.1954	recovered c.10.01.1985	= 30 yrs.4 mths.
CD 1004	29.07.1956	recovered c.10.01.1985	= 28 yrs.5 mths.

ANNOUNCEMENTS.

Group circulars.

Newsletter N 1	June 1980 (English and French versions)
Special Report N 1	October 1981 Index of Diseases of Phoenicopteriformes. Compiled by Pierre E. Rollin
Newsletter N 2	November 1984 (mostly in English, some articles in Spanish)
Special Report N 2	Les effets de la vague de froid de Janvier 1985 sur la population de flamants roses hivernant en France. par A. Johnson
Newsletter N 3	September 1986 (mostly in English, some articles in Spanish and Portuguese)

Proposed publications.

- The results of the IWRB mid-winter Flamingo counts in the western Mediterranean 1972-1987. It is proposed to produce this document as an IWRB Special Publication in 1987.

- The names and addresses of group members. Any modifications would appear in the newsletters; Would you please let the coordinators know.

F.W.G. Special report N 2. Dec 1985. The effects of the cold spell of January 1985 on the population of flamingos wintering in France. (in French, english summary). This 32-pages report gives details of a massive operation which was organised to help save flamingos from starvation during a 15-day spell of below zero temperature which froze most lagoons along the French Mediterranean coast where 20,000 flamingos winter. During this period some birds moved south to Corsica but most stayed on and many were saved when they fed on rice put down at water-holes. One thousand were picked-up weak, maintained in captivity and released after the cold weather. Almost 3,000 corpses were collected and examined (sexed, aged, measured etc.), 155 of which carried rings put on in the Camargue as much as 30 years earlier.
This report is available from the author, Alan Johnson, on request.

WORKSHOP ON FLAMINGOS ?

Many readers will be aware that tentative plans have existed for some time now to organise a workshop on flamingos. Questionnaires were sent out to all members of the group in 1985 and replies were generally in favour of such a meeting. There is, however, a big step between being in favour and actually setting about organising even a regional workshop. Time and funding are required for such an undertaking and the whole issue is presently still very much in the air.

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LATE NEWS

For the third consecutive winter there was a spell of severely cold weather in Europe in January 1987 and many lagoons along the French Mediterranean coast were partially or entirely frozen for two weeks, excepting the extreme S.E. (Var). It also snowed heavily and many birds are known to have perished. Fortunately, this cold spell was not quite as severe as the one of January 1985 and "only" 65 flamingos were reported amongst the casualties. One of these, recovered in Hérault province, carried an Iranian ring!

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LE BAGUAGE DES FLAMANTS ROSES (Phoenicopterus ruber roseus) DANS LA REGION MEDITERRANEENNE A L'AIDE DE BAGUES DE COULEUR EN MATIERE PLASTIQUE GRAVEES D'UN CODE UNIQUE DE TROIS OU QUATRE CARACTERES

Camargue (Bouches-du-Rhône) France

année	nombre	couleur bague	couleur bande	combinaison	exemple
1977	557	jaune	néant	3 lettres commençant par A ou B	ADC
1978	650	blanche	néant	3 lettres commençant par C ou D	CYK
1979	651	jaune	ruban rouge	3 lettres commençant par F, H ou K	FAZ
1980	761	blanche	ruban rouge	3 lettres commençant par L, N, P ou S	NAS
1981	697	jaune	ruban vert	3 lettres commençant par T, V, X ou Z	TVX
1982	652	blanche	ruban vert	2 lettres et 1 chiffre AA- à KZ-	AK3
1983	720	jaune	ruban bleu	2 lettres et 1 chiffre LA- à ZZ-	LP9
1984	781	blanche	ruban bleu	3 chiffres	251
1985	552	jaune	néant	4 lettres AA-- à AC--	ABTL
1986	599	jaune	néant	4 lettres AD-- à AH--	AFST

(Après quelques années le ruban de couleur se détache)

Lagune de Fuente de Piedra (Malaga) Espagne

année	nombre	couleur bague	couleur bande	combinaison	exemple
1986	622	Orange	noire gravée	1 lettre suivie d'une bande noire puis de 2 chiffres	S 62

Les bagues françaises en plastique sont posées sur le tibia droit. En outre, depuis 1986 une bague en métal est posée sur le tibia gauche.

Les bagues espagnoles en plastique sont posées sur le tibia gauche, la bague en métal sur le tibia droit.

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