

**On the Movement and Distribution of the
Greater Flamingo, *Phoenicopterus ruber* in
Bahrain, Arabian Gulf**

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ABSTRACT. Movement and distribution of the Greater Flamingo, *Phoenicopterus ruber* was studied for two years around the shores of Bahrain. Thirty-one sites were monitored bimonthly, and absolute numbers of adult and immature birds were counted. The maximum number of birds was recorded in the month of December for two consecutive years. The study shows that the eastern sheltered shores of Bahrain are the main wintering areas for flamingos where they can be seen during most of the year with the exception of the months of June and July. The study also shows that flamingos in Bahrain are mainly wintering but some visit the shores as passage migrants during Autumn and late Spring.

The Greater Flamingo, *Phoenicopterus ruber* is more widely distributed throughout the world than any of the other four species of flamingos. This species occurs in West Asia, the Mediterranean, East and South Africa, North and South America (Cramp 1986). This large wading bird is considered one of the most beautiful birds around the coast, especially the adults during their flight by the striking red and black colours of the wings.

Intensive studies have been conducted on the Western Mediterranean population, mainly the south of France population in the Camargue (Ogilvie and Ogilvie 1986), but very little information is available for the West Asian population (Cramp 1986). The main breeding site for the West Asian population is Lake Rezaieyh in North-West Iran. Lakes in South Russia, Pakistan, North-West Iran and India also form good breeding sites for the Greater Flamingo (Ogilvie and Ogilvie 1986).

In the Arabian Gulf, *P. ruber* normally breeds in South Iraq (Mahdi 1982). Apart from a rare breeding report from Kuwait at the beginning of the century, no breeding records have been reported from the western region of the Arabian Gulf (Jennings 1981). Mud flat areas around the Arabian Gulf represent important wintering sites for the Western Asian population (Gallagher and Woodcock 1980, Bundy *et al.* 1989, Richardson 1990). Movement and distribution of Greater Flamingo in the area is scarcely known. There is very little and scattered information on the numbers of flamingos and their preferred wintering sites in Bahrain (Nightingale 1986, 1987). The main objective of the present study is to record the movement, distribution of Flamingos and sites preferred by the birds around Bahrain.

Materials and Methods

In order to cover most of the shores around Bahrain, thirty-one accessible sites were chosen for monitoring the birds (Fig. 1). All sites were visited bimonthly for twenty months during the last two years, from October, 1988 until June, 1990. During each sampling period, all sites were monitored on the same day to reduce any effect of bird movement. A 10x binocular and x40 spotting scope were used to count and distinguish between adult and immature birds which can be easily separated by their plumage as shown in Fig. 2.

Results

Fig. 3 shows wintering sites of Flamingos in Bahrain. Apart from Al Mumattalah, which is located in the south west of Bahrain, flamingos were present on the eastern shores of the Island. Maximum total number of birds counted from all stations was 216 in December, 1988 and 208 in December, 1989.

Variation in the numbers of birds throughout this time is shown in Fig. 4. The number of flamingos increased during autumn to reach a maximum in December, then fell to a minimum in late March and early April (1989) and late April (1990). After the April period the number rose again, most likely due to passage birds coming from other wintering sites in the south, before they all left the area by late June.

The ratio between adult and immature birds showed a dramatic change from only 44% adult in the 1988/1989 birds to more than 86% in the 1989/1990 birds.

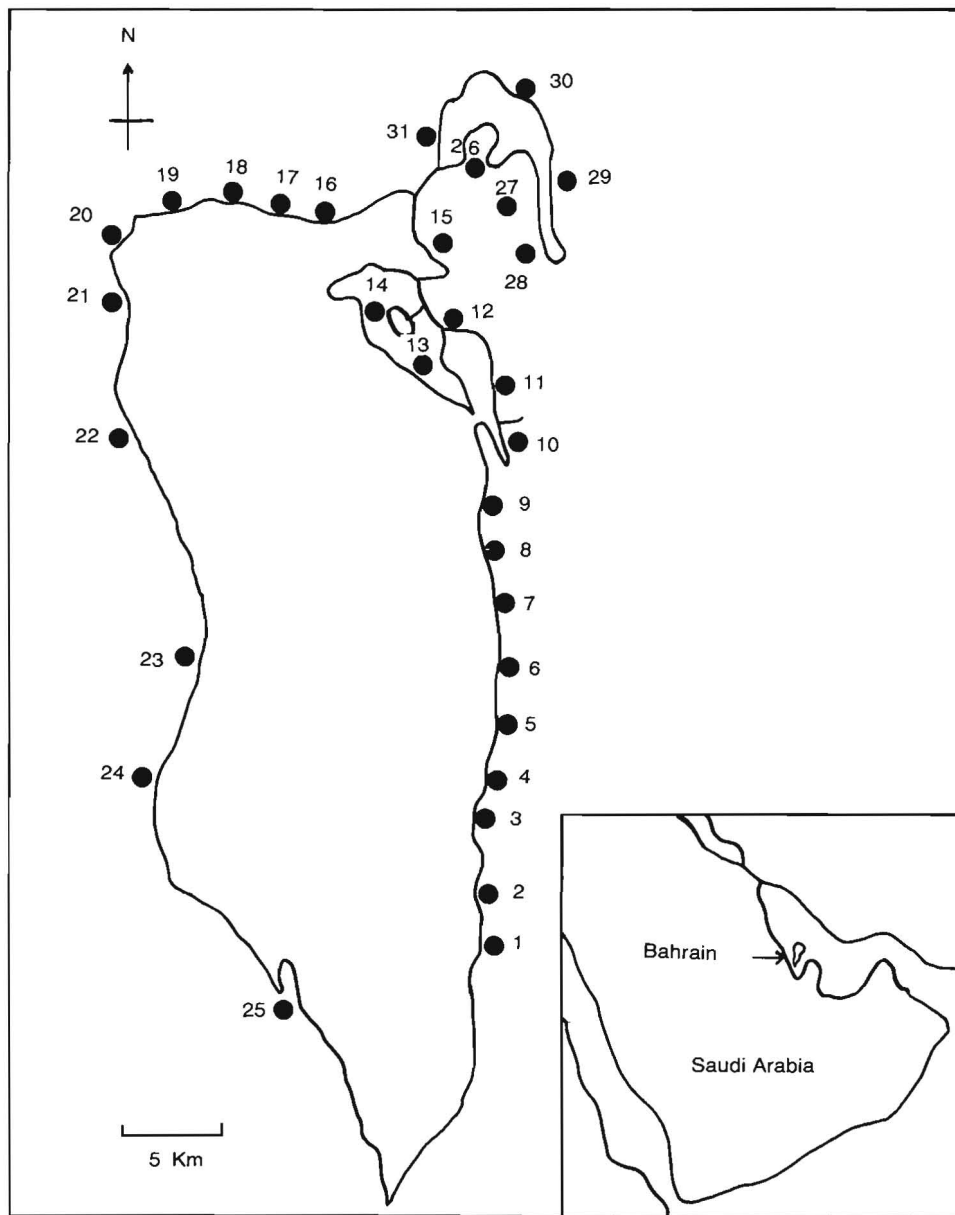


Fig. 1. Sites chosen for monitoring the Greater Flamingo



Fig. 2. Adult and Immature Flamingos

Discussion

The Island of Bahrain with its shallow waters forms an important wintering area for migratory flamingos coming from southern Russia and northern Iran (Cramp 1986, Ogilvie and Ogilvie 1986). The dominant wind in Bahrain is the northwest, which forms around 60% of the wind direction components in the region (Issa 1989). As a result of this both the north and west coasts of Bahrain are exposed, while the eastern shores are sheltered. It is well known that flamingos prefer sheltered shallow water as feeding sites (Cramp 1986). There is no exception in the case of Bahrain where the shallow sheltered shores of the eastern side of the island with their gentle slope and broad intertidal mud and sand flats provide the main wintering area for these birds. The availability of food as well as the presence of competitors were shown to be important factors in the distribution of flamingos (Hurlbert *et al.* 1986). Flamingos were not seen during the study in the exposed north and west shores of Bahrain, but small numbers of birds were occasionally seen at Al Mumattalah which is located on the south-western side of the island. This site, however, represents a small lagoon-like pocket and is considerably sheltered from waves by tongue-like sand bars projecting out from the land to the sea.

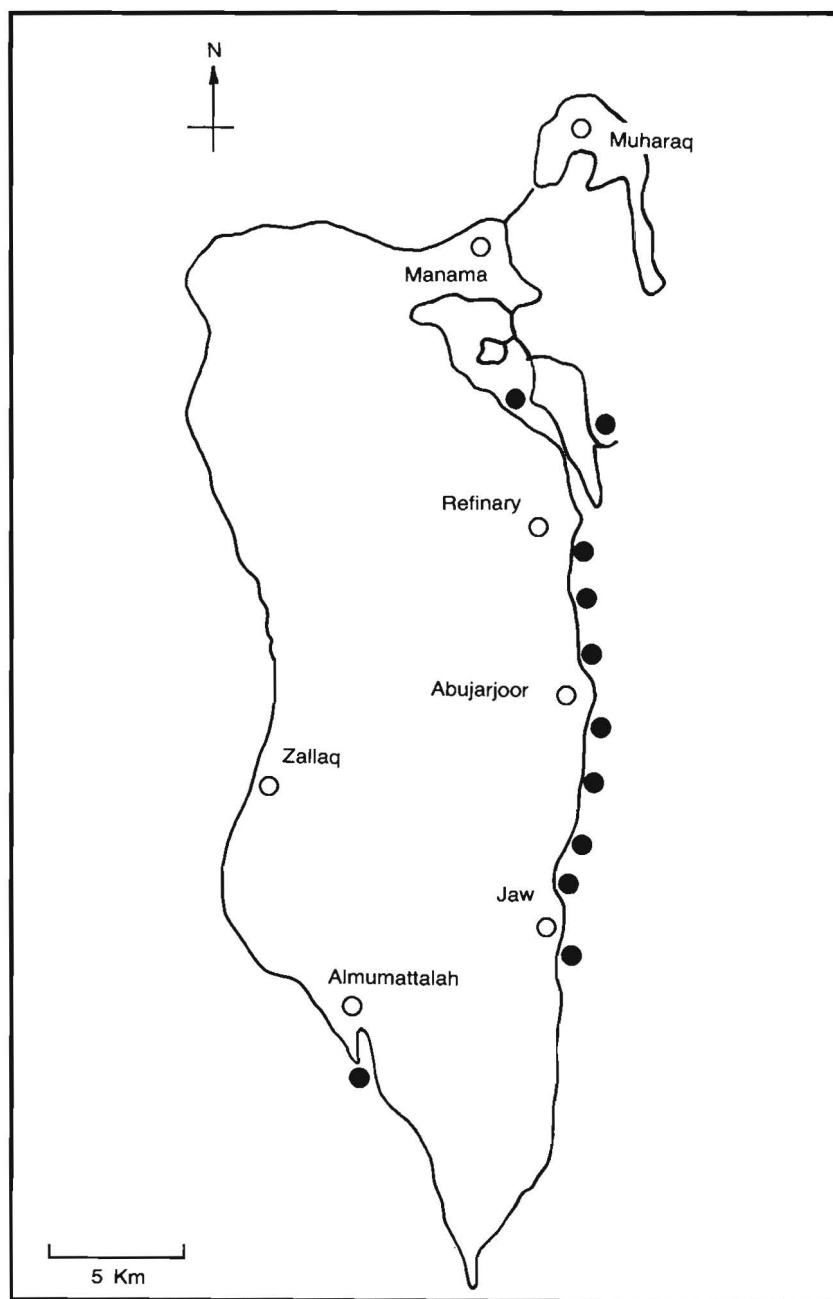


Fig. 3. Wintering sites of the Greater Flamingo in Bahrain

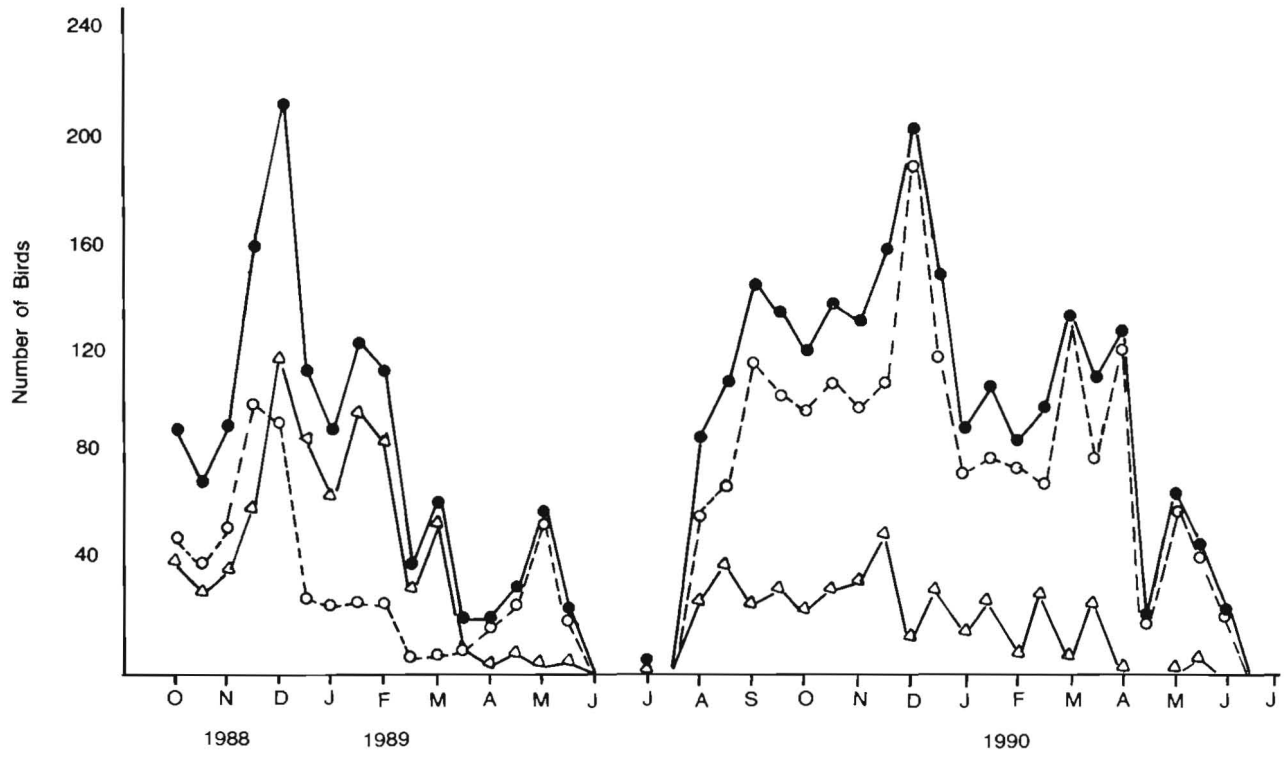


Fig. 4. Monthly variation of the number of Flamingos

The patterns shown in Fig. 4 reflect the number of birds, (immatures and adults), indicating that flamingos are passage migrants as well as wintering birds in Bahrain. The fluctuation in the total number of birds during late autumn and early winter is represented by a clear peak in December, followed by a decline in numbers of birds until March or April when the wintering birds start their movement to the breeding grounds. At this time, another, but smaller peak appears, which represents other birds coming from southern wintering sites where they pass through Bahrain on their way to the breeding areas.

The increase in the percentage of adult birds in 1989/1990 which reached 86% after a low ratio in the previous year (44%), could be the result of many immature birds attaining their maturity without adding new juveniles. This may be due to unsuccessful breeding which is not uncommon to flamingos (Cramp 1986).

Of serious concern is the rapid change and development on the eastern shores of Bahrain which has been taking place in the last few years. These changes could be a serious threat to the natural habitat of the flamingos and other coastal birds. More attention should be given to the mud flats and their avifauna before any further dramatic and damaging change occurs. Now is the right time to save and protect at least some of the critical habitats on the eastern shores of the Island, which provide thousands of birds with the shelter and food supply during their wintering time or when they pass through the region.

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References

- Bundy, G., Connor, R.J. and Harrison, C.J.O.** (1989) Birds of the Eastern Province of Saudi Arabia. H.F. and G. Witherby Ltd., London, in association with Aramco, Saudi Arabia, 224 pp.
- Cramp, S.** (1986) Handbook of the birds of Europe, the Middle East, and North Africa: The birds of the Western Palearctic. Vol. 1. Oxford: Oxford University Press, 722 pp.
- Gallagher, M.D. and Woodcock, M.W.** (1980) The birds of Oman. Quartet Books, London, 310 pp.
- Hulbert, S.H., Loayza, W. and Moreno, T.** (1986) Fish-Flamingo-Plankton interactions in the Peruvian Andes. *Limnol. Oceanogr.* **31**: 457-468.
- Issa, A.M.** (1989) Climate of Bahrain 1902-1988, 131 pp.
- Jennings, M.C.** (1981) Birds of the Arabian Gulf, George Allen and Unwin, London, 167 pp.
- Mahdi, Sh.** (1982) Waterfowl in Iraq and the Arab World. Dar Alrashid for Publication. Iraq, 242 pp (in Arabic).
- Nightingale, T.** (1986) Count of Greater Flamingo *Phoenicopterus ruber*. Bahrain Natural History Society Newsletter.
- Nightingale, T.** (1987) The Bahrain bird report 1982-1984. In: **Nightingale, T. and Overy, M.** Wildlife in Bahrain, Biennial report of the Bahrain Natural History Society. **4**: 45-121.
- Ogilvie, M. and Ogilvie, C.** (1986) Flamingos, Alan Sutton. Gloucester, Great Britain, 122 pp.
- Richardson, C.** (1990) The Birds of the United Arab Emirates, Hobby Publications, Warrington, 180 pp.

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حول حركة وتوزيع طائر النحام الكبير *Phoenicopterus ruber* في البحرين بالخليج العربي

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يتواجد طائر النحام الكبير *Phoenicopterus ruber* في كثير من مناطق العالم، فهو يوجد في غرب آسيا والبحر المتوسط وشرق وجنوب أفريقيا وأمريكا الشمالية والجنوبية. في منطقة غرب آسيا يتكاثر هذا الطائر بشكل رئيسي في بحيرة رزاية الواقعة في شمال إيران، وتعتبر تلك البحيرة المصدر الرئيسي للطيور التي نشاهدها على سواحل الخليج العربي خلال أغلب شهور السنة.

يهدف هذا البحث إلى دراسة حركة وتوزيع طائر النحام الكبير في سواحل البحرين وكذلك التعرف على الأماكن التي تفضلها الطيور عند قضاء فترة الشتاء في المنطقة. لقد تم تحديد ٣١ محطة حول سواحل البحرين لرصد الطيور من حيث التواجد والعدد والنسبة بين البالغين واليافعين. وتمت زيارة جميع هذه المحطات مرتين في الشهر على مدى سنتين.

لقد بينت الدراسة أن طائر النحام الكبير يتواجد بشكل مستمر على مدار العام ما عدا شهري حزيران (يونيو) وتموز (يوليو) وذلك في المناطق المحاذية للساحل الشرقي من جزيرة البحرين. ويتميز هذا الساحل بمياهه الضحلة وهدوء أمواجه بالإضافة إلى وجود المسطحات الرملية والطينية التي تبرز وقت الجزر.

أظهرت النتائج بأن عدداً من هذه الطيور تقضي فترة الشتاء في سواحل البحرين إلا أن أعداداً أخرى تعبر المنطقة في طريق هجرتها الموسمية ويتضح ذلك جلياً في الأعداد الكبيرة التي تشاهد في نهاية الخريف وبداية الشتاء وبالذات في شهر كانون الأول (ديسمبر) إذ وصل عدد الطيور إلى ٢١٦ في عام ١٩٨٨ و ٢٠٨ في عام ١٩٨٩ .

تتصف السواحل الشمالية والغربية للبحرين بإنحدارها الشديد وأمواجهها النشطة مما يجعلها غير مرغوبة من قبل كثير من طيور الساحل ومنها النحام الكبير إلا أن هناك منطقة واحدة تقع في جنوب غرب البحرين (الممطلة) وتشكل جيئاً ذا أمواج هادئة ومياه ضحلة مما ساعد على إستقطاب عدد من طيور النحام إلى تلك المنطقة .

ان التطور العمراني السريع في السنوات الأخيرة، وتزايد المشاريع في السواحل الشرقية من البلاد يشكل بلا شك خطراً على بيئة النحام الكبير ومن هنا يتحتم علينا رعاية وحماية تلك البيئات التي تستقطب هذه الطيور الجميلة وإلا فإن المستقبل سوف يشهد إنحساراً لكثير من طيور الساحل ومنها طائر النحام الكبير .