

The occurrence of Skuas (Stercoraridae) in the Middle East, with special reference to Egypt and the northern Red Sea

By Peter L. Meininger and Uffe Gjørl Sørensen

1. Introduction

In the most comprehensive work on Egyptian ornithology MEINERTZHAGEN (1930) included the Pomarine Skua (*Stercorarius pomarinus*) as the only *Stercorarius* definitely occurring in the country. Although at that time there were observations of Arctic Skua (*S. parasiticus*), MEINERTZHAGEN (1930) considered it hypothetical since no specimens had been collected.

Between 1930 and 1965 both the Pomarine and the Arctic Skua were recorded on a few occasions in Egypt. With intensified observations in the period between 1965 and 1985 it became clear that both these species occur regularly and in considerable numbers on the Mediterranean coast and in the northern part of the Red Sea (Gulfs of Suez and Aqaba). In recent years there are also reliable records of Long-tailed Skua (*S. longicaudus*) and Great Skua and/or South Polar Skua (*S. skua* and/or *S. maccormicki*) from the country.

The material collected to date for a book on Egyptian birds (Birds of Egypt Project, BEP; see MEININGER & MULLIÉ 1981a; GOODMAN, MEININGER & MULLIÉ 1983) adds considerably to the information summarized on skuas in the area by CRAMP & SIMMONS (1982). Localities mentioned in the text are summarized in Fig. 1.

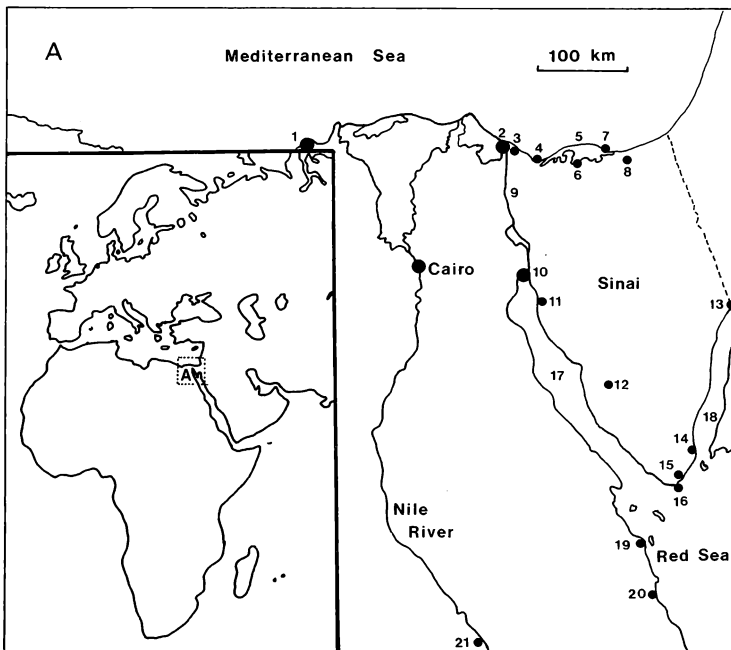


Fig. 1: Geographical position of some of the localities mentioned in the text.
 1. = Alexandria; 2. = Port Said; 3. = El Malaha, Bur Fuad; 4. = Români; 5. = Lake Bardawil; 6. = Misfaq; 7. = Zaranikh; 8. = El 'Arîsh; 9. = Suez Canal; 10. = Suez and Bay of Suez; 11. = Râs el Sudr; 12. = Wâdi Feirân; 13. = Eilat; 14. = Nabq; 15. = Sharm el Sheikh; 16. = Râs Muhammed; 17. = Gulf of Suez; 18. = Gulf of Aqaba; 19. = Hurghada; 20. = Safaga; 21. = El Balyana.

2. Methods

The data which form the basis of this paper have been collected in several ways; an extensive survey of the literature on Egyptian birds, unpublished information sent to the BEP and our own fieldwork. The majority of the observations have been collected from two localities: Lake Bardawil on the North coast of Sinai, Egypt (from August to October) and at Eilat at the northern end of the Gulf of Aqaba, Israel (mainly from February to May).

Lake Bardawil: A large scale migration of waterbirds takes place here in August–October (PARAN & PAZ 1978, PARAN 1980, PETERSEN & SØRENSEN 1980, 1981a, 1981b, BAHA EL DIN & SALAMA 1984). Most of the data presented herein were collected in the periods 11–20 October 1979, 7–30 September 1980 and 16 August – 24 September 1981 (PETERSEN & SØRENSEN *op. cit.*). During these study periods a complete coverage of the visible migration was performed by continuous dawn and dusk observations. All observations were made from a fixed position close to the sea-shore at the eastern most end of the lagoon near Zaranikh. For each single observation the following details were recorded: species, flock size, direction of migration and when possible (1980 and 1981 only) age and colour-phase of skuas passing. In 1982 a similar count was carried out between the period of 2–24 September (BAHA EL DIN & SALAMA 1984).

Eilat: Eilat has been a centre of intensive ornithological activities for over twenty years (BUCHWALD 1979; CHRISTENSEN *et al.* 1981; KRABBE 1980; PIHL 1977; SAFRIEL 1968; SHERIHAI 1982). No systematic work has been done on skua migration over the area. Most of the records kept have been tabulated by various visiting ornithologists and are consequently of more or less random nature (N. KRABBE *in litt.*). The best spring coverage of skua migration was in 1979, when the migration was recorded on most afternoons from the beach (E. BUCHWALD *in litt.*).

Acknowledgements

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Records of skuas were received from numerous people (mentioned in the text) in the framework of the Birds of Egypt Project. NIELS KRABBE and ERIK BUCHWALD provided us with the basic data from Eilat. LENE SMITH helped translate an Italian paper.

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3. Results

In this section records of skuas in Egypt and adjacent areas are presented by species. The observations at Lake Bardawil in autumn and near Eilat are presented separately (3.5. and 3.6.).

3.1. Pomarine Skua

All known records of Pomarine Skua in Egypt and adjacent areas, except those at Lake Bardawil in autumn and at Eilat, are presented in table 1. In spring the species is most frequently observed near Eilat (see 3.6., table 6), where it is considered a common passage migrant from

Table 1: Records of Pomarine Skua (*Stercorarius pomarinus*) in Egypt (excluding records from Lake Bardawil in autumn and from near Eilat, Israel).

| DATE | NUMBER | LOCALITY | SOURCE |
|-----------------|---------------------------------|--|---|
| 11 May 1922 | 1 | struck Ashrafi Lighthouse, Gulf of Suez | MEINERTZHAGEN 1924. WING in BMNH |
| 25 March 1945 | 4 | off north coast of Egypt | ELLIOTT 1952 |
| May 1945 | 1 | near Suez | MACLAREN 1946 |
| May 1945 | 1 | middle of Red Sea | idem |
| 26 June 1945 | 1 | Bay of Suez | PHILLIPS 1947 |
| 5 April 1960 | 1 | northern Red Sea (22.30 N 37.30 E) | BOURNE & RADFORD 1961 |
| 1 July 1977 | 6 (1 ad light, 5 imm.) | Alexandria | MEININGER & DIELISSEN 1979 |
| 29 May 1979 | 1 | Sharm el Sheikh (S. Sinai) | P. BISON & N. V. D. HAM |
| 6 January 1980 | 3 imm. flying W | Lake Bardawil near Misfaq | MEININGER & MULLIÉ 1981b |
| 7 January 1980 | 1 imm. flying W | Lake Bardawil near Misfaq | idem |
| 13 August 1980 | 5-10 | Port Said | R. DEKKER |
| 14 August 1980 | 2 | Port Said | idem |
| 13 October 1980 | 1 (imm. light) | Port Said | MEININGER & MULLIÉ 1981b |
| 15 March 1981 | 1 | Port Said | S. M. BAHA EL DIN & B. BRUUN |
| 16 April 1981 | 3 | Port Said | S. M. GOODMAN |
| 9 June 1984 | 5 (1 ad. light ph., 4 unsp.) | Suez | B. HAASE, A. VAN DER NIET, A. VAN DEN BERG, C. BOSMAN & C. SMEENK |
| 16 March 1985 | 1 (light ph.) | Ras Mal'ab, Abu Zenima (SW-Sinai) | T. D. H. MERRIE |
| 13 July 1985 | 3 imm. | Bay of Suez | B. HAASE, A. VAN DER NIET, A. VAN DEN BERG, C. BOSMAN & C. SMEENK |
| 17 July 1985 | 1 | Bay of Suez | idem |

February to July (U. PAZ in litt.). Here most birds are seen migrating in northern directions, thus leaving the sea and continuing their migration overland. The daily maximum recorded near Eilat is 39 individuals (KRABBE 1980), with the peak migration taking place in May.

At the northern end of the Gulf of Suez this species is less commonly observed, although this area is not as frequently visited by ornithologists as Eilat. During a systematic count of migrating raptors at Suez in spring 1982 it was not observed (WIMPFHEIMER et al. 1983).

In autumn the Pomarine Skua is recorded in Egypt from mid-August to mid-winter, almost exclusively along the north coast of Sinai (see 3.5., fig. 2). The majority are observed flying westward along the coast. It seems plausible that these birds cross overland, possibly along a broad front and at high altitudes, to the Red Sea. On 6 and 7 January 1980 three and one immature birds respectively were observed flying westward along the southern shore of Lake Bardawil. These skuas may have been wintering locally or late migrants.

3.2. Arctic Skua

All known records of Arctic Skua in Egypt and adjacent areas are presented in table 2, except those at Lake Bardawil in autumn and near Eilat (see 3.5. and 3.6.).

Like the Pomarine Skua, in spring the Arctic Skua is most frequently observed near Eilat, where it is considered a common migrant from the end of January to July or August (U. PAZ in litt.). The most concentrated migration near Eilat is in April, where the daily maximum count is 48 (KRABBE 1980), and most birds are seen migrating in northerly directions.

Table 2: Records of Arctic Skua (*Stercorarius parasiticus*) in Egypt (excluding records from Lake Bardawil in autumn and from near Eilat, Israel).

| DATE | NUMBER | LOCALITY | SOURCE |
|------------------|------------------------|--|---|
| 10 April 1897 | 1 | collected Ballianah (El Balyana), Nile | KOENIG 1932 (Mus. A. KOENIG coll nr. ZF MAK 3860) |
| 20 February 1920 | 6 | near Port Said | MEINERTZHAGEN 1930 |
| February 1920 | 3 | ibidem | idem |
| February 1920 | 1 | decomposed specimen Port Said | idem |
| 4 April 1928 | 1 | Gulf of Suez | idem |
| 17 April 1928 | 1 flying N | Gulf of Suez | ALEXANDER 1929 |
| Sept. 1940 | 1 | collected Port Said | EL NEGUMI et al. 1950 |
| 29 August 1944 | 4 flying S | Suez Canal, Kasfareet | L. BOULDIN |
| (27 June 1945 | 1 probable | near The brothers, Red Sea | PHILLIPS 1947) |
| (17 April 1958 | 1 probable | off Alexandria | FISHER 1959) |
| 30 April 1963 | 1 | northern end Suez Canal | BOURNE 1967 |
| 10 May 1963 | 3 | Bay of Suez | idem |
| 11 May | 4 | Bay of Suez | idem |
| 18 August 1965 | 2 | near Port Said | idem |
| 17 February 1967 | 3 | off Port Said (32° N 34° E) | BOURNE & DIXON 1973 |
| 3 April 1974 | 5 flying N | Nabq (S. Sinai) | S. J. CHRISTENSEN |
| 5 April 1974 | 1 | Ras Muhammed (S. Sinai) | idem |
| 13 Sept. 1974 | 4 | off el Arish (N. Sinai) | PAZ & PARAN 1975 |
| 14 Sept. 1974 | 3 | ibidem | idem |
| 15 Sept. 1975 | 2 | ibidem | idem |
| 8 April 1978 | 1 flying N | Sharm el Sheikh (S. Sinai) | M. ALIBONE |
| 10 May 1978 | 1 | Ras Muhammed (S. Sinai) | L. ANDERSEN |
| 26 May 1978 | 28 | Gulf of Suez | R. J. MYCOCK & L. R. PRINCE |
| 9 January 1980 | 1 flying W. | El Malaha, Bur Fuad (N. Sinai) | MENINGER & MULLIÉ 1981b |
| 4 October 1980 | 2 | Port Said | I. PETERSEN & UGS |
| 13 October 1980 | 34 (2 flying W, 29 E.) | Port Said (in 2 hours) | MEININGER & MULLIÉ 1981b |
| 14 October 1980 | 2 | Port Said | S. M. BAHA EL DIN & PLM |
| 15 October 1980 | 11 | Port Said (in 1 hour) | idem |
| 15 March 1981 | 4 | Port Said | S. M. BAHA EL DIN & B. BRUUN |
| 23 March 1981 | 1 flying NE | Sharm el Sheikh (S. Sinai) | K. OHLSEN |
| 7 May 1981 | 13 NW | Suez (flying inland) | S. M. BAHA EL DIN & S. VYAS |
| 28 August 1981 | 8 imm. | N. of Romani (N. Sinai) | S. M. BAHA EL DIN & UGS |
| 10 Sept. 1981 | 1 ad light phase | ibidem | I. PETERSEN & UGS |
| 20 Sept. 1981 | 3 flying W | ibidem | idem |
| 4 Nov. 1981 | 1 ad. flying S | Suez Canal near Suez | R. G. BIJLSMA |
| 7 May 1982 | 1 | Suez | WIMPFHEIMER et al. 1983 |
| 11 May 1982 | 4 flying N | Suez (flying inland) | idem |
| 11 July 1985 | 1 imm. | Bay of Suez | B. HAASE, A. VAN DER NIET, A. VAN DEN BERG, C. BOSMAN & C. SMEENK |
| 12 July 1985 | 1 imm. | ibidem | idem |
| 15 July 1985 | 3 imm. | ibidem | idem |
| 16 July 1985 | 3 | ibidem | idem |
| 17 July 1985 | 1 imm. | ibidem | idem |
| 18 July 1985 | 6 | ibidem | idem |
| 19 July 1985 | 1 imm. | ibidem | idem |

Smaller numbers have been recorded near Suez in the spring and the summer (table 2). There are also several spring records from the Mediterranean coast near Port Said (February to April).

During the autumn (August–November) the Arctic Skua is frequently recorded along the north coast of Sinai and near Port Said in considerably larger numbers than the Pomarine Skua. Most, if not all birds presumably cross overland or along the Suez Canal to the Red Sea.

Table 3: Records of Long-tailed Skua (*Stercorarius longicaudus*) in Egypt and near Eilat (Israel).

| DATE | NUMBER | LOCALITY | SOURCE |
|-----------------|------------------------|---------------------------------|---------------------------------|
| spring 1970 | 1 | Eilat | PIHL 1977 |
| 20 May 1973 | 1 | ibidem | N. KRABBE in litt. |
| late March 1976 | 1 | ibidem | idem |
| 24 April 1977 | 1 | ibidem | PIHL 1977 |
| 12 April 1979 | 1 ad flying N | ibidem | J. RUINAARD |
| 20 April 1979 | 1 ad | ibidem | N. KRABBE in litt. |
| 1 May 1979 | 2 ad | ibidem | idem |
| 2 May 1979 | 1 ad | ibidem | idem |
| 3 May 1979 | 2 ad | ibidem | idem |
| 12 May 1979 | 3 ad flying N | ibidem | idem |
| 24 July 1980 | 1 | ibidem | SHERIHAI 1982 |
| 25 July 1980 | 3 | ibidem | idem |
| 28 July 1980 | 1 | ibidem | idem |
| 29 July 1980 | 1 | ibidem | idem |
| 8 August 1980 | 1 | ibidem | idem |
| 25 June 1981 | 1 found as dried mummy | Wadi Feiran, Sinai | Tel Aviv Un. Mus. 9708 |
| 20 August 1981 | 1 ad | Romani (N. Sinai) | S. M. BAHA EL DIN |
| 15 Sept. 1981 | 1 ad flying W | Zaranikh (N. Sinai) | I. PETERSEN & UGS |
| 17 Sept. 1981 | 1 ad + 1 1st year W | ibidem | idem |
| 19 Sept. 1981 | 2 ad + 1 1st year E | ibidem | idem |
| 19 Sept. 1981 | 1 ad flying W | ibidem | idem |
| 16 Sept. 1982 | 1 | ibidem | BAHA EL DIN & SALAMA 1984 |
| 24 April 1984 | 1 ad flying N | Sharm el Sheikh, S. Sinai | M. SIERING |
| 2 May 1984 | 1 ad | Eilat | R. VOGEL |
| 3 May 1984 | 4 ad flying N | ibidem | idem |
| 23 May 1984 | 1 | off Gezira Abu Minqar, Hurghada | S. M. GOODMAN & R. W. STORER |

3.3. Long-tailed Skua

Since 1970 there have been several records of Long-tailed Skuas in Egypt and the northern Red Sea (table 3.)

3.4. Great Skua and/or South Polar Skua

In September 1978 one Great Skua was seen off Lake Bardawil (U. PAZ in litt.). This is the only known positive Egyptian record. Possible South Polar Skuas were seen off Port Said on 27 April 1961, 23 May 1961, 23 May 1959 (two) and 5 July 1964 and in the Gulf of Suez at 28° N 33° E on 17 August 1957 (MÖRZER BRUYNS & VOOUS 1965). A skua seen off Port Said on 22 March 1964 (BOURNE 1967) may also have concerned this species complex.

3.5. Lake Bardawil

The total numbers of skuas in the autumns 1973 and 1978 to 1982 are shown in table 4. Out of the 326 skuas recorded in the years 1979–1982 305 (94%) were identified to species: 271 Arctic Skuas (88.9%), 26 Pomarine Skuas (8.5%) and 8 Long-tailed Skuas (2.6%).

Table 4: Numbers of skuas (Stercorariidae) observed at Lake Bardawil, N. Sinai, Egypt, in the autumns of 1973 and 1978–82.

| | OBSERVATION PERIOD | | | | | |
|-------------------------------|--------------------|-------------------|------------------|----------------|-------------------|----------------|
| | 1973 13/8–29/9 | 1978 15/8–7/10 | 1979 11–20/10 | 1980 7–30/9 | 1981 16/8–24/9 | 1982 2–24/9 |
| <i>Stercorarius pomarinus</i> | — | — | 3 | 16 | 4 | 3 |
| <i>S. parasiticus</i> | 62 | 66 | 22 | 63 | 116 | 70 |
| <i>S. longicaudus</i> | — | — | — | — | 7 | 1 |
| <i>S. spp.</i> | — | — | 1 | 10 | 5 | 5 |
| TOTAL | 62 | 66 | 26 | 89 | 132 | 79 |

The daily totals are presented in figure 2. There are no obvious migration peaks for either Arctic or Pomarine Skua; in contrast to the Long-tailed Skua which was recorded within a five-day period.

Almost all skuas were seen migrating westward along the Mediterranean coast. They mostly passed singly or in small groups with the maximum of seven per flock. The skuas passed low over the water. The only exception was on 25 August 1981 when an adult Arctic Skua started to soar above the beach with 30 Lesser Black-backed Gulls (*Larus fuscus*) in an apparent attempt to cross overland. However, the flock finally glided westward along the coast. The diurnal rhythm of skua migration showed slightly increasing numbers throughout the day, but with no distinct trend.

In 1980 and 1981 61% of the Arctic Skuas noted were adults and 39% immatures ($\geq 2^{\text{nd}}$ year) ($n = 181$, 62% identified to age; table 5). The corresponding figures for the Pomarine Skua (all light-phase) during the same period were five adult and seven immatures ($n = 20$, 60% identified to age). Although special attention was paid to ages, no first-year birds of either species were identified. In 1981 two out of seven Long-tailed Skuas were first-years and the balance adults.

Table 5: Ages and colour phases of Arctic Skuas (*Stercorarius parasiticus*) seen migrating along Lake Bardawil, N. Sinai, Egypt, 7–30 September 1980 and 16 August – 24 September 1981.

| AGE | n | light phase | dark phase | intermediate phase | unspecified |
|-------------------------------------|-----|-------------|------------|--------------------|-------------|
| adult | 68 | 47 | 18 | 3 | — |
| immature (≥ 2 calendar years) | 44 | 29 | 7 | 2 | 6 |
| unspecified | 69 | 11 | 12 | — | 46 |
| TOTAL | 181 | 87 | 37 | 5 | 52 |

The colour-phases of 129 Arctic Skuas (71% of the total identified, $n = 181$) included 67% light-phase, 29% dark-phase and 4% belonging to intermediate phases (table 5). Since they are easier to recognize from a distance light-phased birds are probably slightly over-recorded.

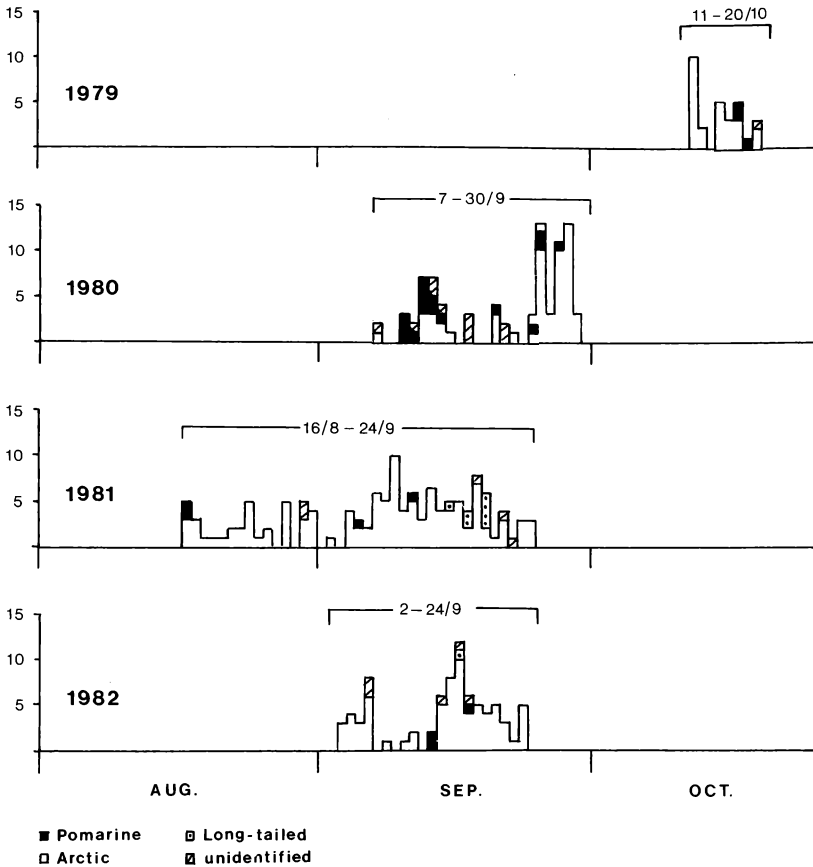


Fig. 2: Daily totals of skuas (*Stercoraridae*) observed at Zaranikh, Lake Bardawil, N. Sinai, in the autumns of 1979-82. The observation period is indicated.

3.6. Eilat

The count totals of skuas recorded at Eilat in the springs of 1969 to 1979 are shown in table 6. In all 426 skuas (77 % of the total recorded, n = 552) were identified to species in 1979. This included 293 Arctic Skuas (69 %), 124 Pomarine Skuas (29 %) and nine Long-tailed Skuas (2 %).

Table 6: Numbers of skuas (*Stercoraridae*) observed at Eilat (Israel) in different years (N. KRABBE & E. BUCHWALD in litt.).

| | OBSERVATION PERIOD | | | | |
|-------------------------------|--------------------|------------------|-------------------|------------------|------------------|
| | 1969-1975 | 1976 8/2-11/4 | 1977 25/2-22/5 | 1978 15/2-1/5 | 1979 20/2-2/6 |
| <i>Stercorarius pomarinus</i> | 1 | 2 | 5 | 15 | 124 |
| <i>S. parasiticus</i> | 35 | 3 | 45 | 54 | 293 |
| <i>S. longicaudus</i> | 1 | 1 | 1 | — | 9 |
| <i>S. spp.</i> | | | | | 126 |
| TOTAL | 37 | 6 | 51 | 69 | 552 |

Table 7: Numbers of Pomarine Skua (*Stercorarius pomarinus*) and Arctic Skua (*S. parasiticus*) recorded at Eilat (Israel) between 1976–79, per ten days (N. KRABBE & E. BUCHWALD in litt.).

| | February | | | March | | | April | | | May | | | June |
|-----------------------|----------|----|-----|-------|----|-----|-------|-----|-----|-----|----|-----|------|
| | I | II | III | I | II | III | I | II | III | I | II | III | I |
| <i>S. pomarinus</i> | — | — | — | — | — | 2 | 2 | 27 | 7 | 36 | 23 | 48 | 1 |
| <i>S. parasiticus</i> | — | — | 10 | 4 | 3 | 23 | 31 | 133 | 60 | 53 | 64 | 3 | 11 |

The numbers of Arctic Skua seemed to peak in mid-April, and of the Pomarine in May (table 7). The vast majority of both species were recorded on direct north-bound migration. When reaching the shore skuas normally gain altitude rapidly, often by soaring, and soon disappear out of sight, thus starting a high overland migration. Consequently inland skuas are only occasionally recorded, even at Eilat.

Most skuas pass in small groups, but occasionally up to about 20 per flock. Mixed flocks with two and even three species have been recorded.

Here skua-migration occurs throughout the day, but there is insufficiently data to make any generalizations about diurnal rhythms.

Information on age classes and colour-phases were not noted consistently throughout the years, mainly because other than adult, light-phased birds were rare exceptions. In all only three dark-phased birds were positively identified. In the period from 19 May to 2 June 1979 a total of 119 skuas were recorded: 62 adult, light-phased and one immature, light-phased of Arctic Skua, 56 adult Pomarine Skuas (54 light-phase, one dark phase and one unknown) and one adult Long-tailed Skua (E. BUCHWALD in litt.).

4. Discussion

4.1. Pomarine and Arctic Skua

Both species regularly occur in Egypt and adjacent areas during the spring and autumn, as well as during the summer and winter. The number of ornithologists visiting the area during winter and summer has been limited, perhaps accounting for the lack of information.

Spring

With the present spring information the Arctic Skua outnumbers the Pomarine Skua three to one. Arctic Skua migration peaks earlier than that of Pomarine Skua, as is the case in Western Europe (CRAMP & SIMMONS 1982; GLUTZ VON BLOTZHEIM & BAUER 1982).

The birds recorded at Eilat were almost exclusively adult and light-phased and were seen heading north at high altitudes. This strongly suggests a transcontinental migration towards the arctic breeding grounds of northern Eurasia, where light-phased birds predominate (GLUTZ VON BLOTZHEIM & BAUER 1982).

It is not clear where spring migrants have spent the winter. The Pomarine Skua is known to winter in the northern Indian Ocean (CRAMP & SIMMONS 1982), particularly in the Gulf of Aden (BOURNE & DIXON 1973, ELLIOTT 1952) and in upwelling areas off southeast Arabia, with the largest numbers in the Gulf of Oman (BAILEY 1966). The wintering of Arctic Skuas in these areas is questioned by many authors (BAILEY 1966, CRAMP & SIMMONS 1982, GLUTZ VON BLOTZHEIM & BAUER 1982, MEINERTZHAGEN 1954).

It is more likely that spring migrants reaching Egypt and Israel originate from winter quarters in the Atlantic off southern Africa. Thus birds having rounded Africa during the winter into the Indian Ocean take the more direct route to the breeding grounds. The Arctic

Skua is the most numerous skua in this wintering area (GRIFFITHS & SINCLAIR 1982), which would explain its preponderance at Eilat. Little evidence is available for the occurrence of skuas off southeast Africa (CRAMP & SIMMONS 1982), but there are a few records from Kenya: Pomarine Skua four times in December–March and Arctic Skua once in April (BACKHURST et al. 1973, BRITTON 1980). However, very little birdwatching has been done along the coast of East Africa (BACKHURST et al. 1973) and the birds may easily pass unnoticed or perhaps out to sea.

Spring records of both species have been reported from the Persian Gulf and adjacent waters, but again the picture is unclear (LØPPENTHIN 1951, TUCK 1974, BUNDY & WARR 1980).

There are only a few spring records of both species from the Red Sea outside Egyptian waters (ALEXANDER 1929, URBAN & BROWN 1971, CORNWALLIS & PORTER 1982, WELCH & WELCH 1984).

It is difficult to synthesize this information into a general pattern to interpret the movements of these species in Egypt and adjacent waters. One main reason may be the lack of former systematic fieldwork by ornithologists in most of the Middle East. Undoubtedly more research is needed throughout the area, and at Eilat in particular.

The quick and apparently goal directed migration at Eilat does not suggest a random nature of movements. If the birds indeed have their origin in the winter quarters off southern Africa, it seems likely that they may actively migrate north along the east coast of Africa rather than accidentally moving the Red Sea after wandering into the Indian Ocean during winter. Indeed, for arctic birds having wintering grounds in or near southern Africa, it would be advantageous to take the shorter route north through the Red Sea and then overland rather than going northwest via West-Africa and then up the Atlantic (13,000 and 15,300 km respectively, calculated from Port Elizabeth (South Africa) to Jamal Peninsula (USSR)).

DAVENPORT (1975) hypothesized an overland spring migration across Scandinavia for those Pomarine Skuas which pass through the English Channel and that this final part of this route is an attempt to negotiate the long distance in the shortest possible time. The circle distance from Eilat to the breeding areas of the Pomarine Skua is almost equal to the circle distance from the English Channel to the breeding grounds (5,100 km and 4,500 km respectively).

It is impossible to estimate the number of spring migrants passing over the Middle East as compared to the known route up the Atlantic. In 1979, the numbers of Pomarine Skua at Eilat were higher than those from the best sea-watch sites in Great Britain and Ireland (DAVENPORT 1975). Only a fraction of the total movements up the Atlantic is recorded from these localities (GLUTZ VON BLOTZHEIM & BAUER 1982). The position of Eilat in the northern end of the Red Sea may act as a "bottle-neck" and thus the birds are concentrated there.

Summer

Summer-records of Pomarine Skua are known from Alexandria and the Gulf of Suez (table 1). More significant is the continuous presence of both Arctic and Pomarine Skua near Eilat in June and July (U. PAZ in litt.). Based on continuous observations from late July to late November in 1980 both species are rare from late July to late August (SHERIHAI 1982). The age of the Eilat summer birds was not recorded, but they were presumably immatures or non breeders. From 11 to 16 July 1985 a total of 5–16 immature Arctic Skuas was observed in the Bay of Suez (table 3). Non-breeders and immatures are known to migrate in the general direction of the breeding areas, but remain widely scattered over the North Atlantic in summer, and some remain in the winter quarters (CRAMP & SIMMONS 1982, GLUTZ VON BLOTZHEIM & BAUER 1982). Immature Pomarine Skuas are reported to summer in the Gulf of Oman (BAILEY 1966). They have been recorded in June and July in the Arabian Gulf (BUNDY & WARR 1980) and in early summer in the Red Sea off Saudi Arabia (JENNINGS 1981). Arctic Skuas have been noted in June in Kuwait and in July in Abu Dhabi (BUNDY & WARR 1980). One was seen inland at Riyadh (Saudi Arabia) from 7 to 9 June 1982 (M. C. JENNINGS in litt.).

GREMPE (1981) suggested, mainly on data from Greece, that there may be a summering area of immatures in the eastern Mediterranean Sea. There seems to be no similar information from the western Mediterranean Sea.

Autumn

In autumn at Bardawil the Arctic Skua outnumbers the Pomarine Skua by a ratio of ten to one. There are no known waves of migration during this season. At Lake Bardawil skuas were already present when the observations began in mid-August 1981, and only a slight increase in numbers was noted during September. No distinct peak was recorded. Both species were still present when observations ceased in mid-October 1979.

The paucity of Pomarine Skua, in comparison to Eilat in spring, is obvious. In western Europe the autumn migration of Pomarine Skua is approximately one month later than that of Arctic Skua, for example peaking in mid-October in Denmark (MØLLER 1978; MELTOFFE 1979) and in October–November along the Dutch coast (CAMPHUYSEN & VAN DIJK 1983). Consequently, the Pomarine Skua could be expected in larger numbers later in the year.

An overland migration from the breeding grounds is believed to occur for both species (GREMPE 1981; GLUTZ VON BLOTZHEIM & BAUER 1982). However, several circumstances indicate that the autumn-movement in Egypt is not just a result of a reversed migration of the populations crossing in the spring.

The high proportion of dark-phased Arctic Skuas at Lake Bardawil indicates that a significant amount of these migrants are of non-arctic origin. This is in clear contrast to the spring migration. It has been found that the Atlantic breeding population of Arctic Skua has a preponderance of dark-phased birds (GLUTZ VON BLOTZHEIM & BAUER 1982).

Autumn records from Switzerland (probably relevant to most other observations from interior Europe) have been correlated to unusual weather conditions where the skuas are blown inland during gales from the west. Autumn records peak in September and October but mainly first-year birds are involved (SEITZ & VON WICHT 1980). Thus the Egyptian autumn birds seem not to be related to trans-European movements.

Furthermore the lack of first-year Arctic and Pomarine Skuas at Lake Bardawil is striking, as is the high proportion of second-year or older immatures. In northern Russia Arctic Skuas fledge in early August, at the same time as Long-tailed Skuas (GLUTZ VON BLOTZHEIM & BAUER 1982). Consequently, they should be expected to arrive at Lake Bardawil in September. This may indicate that non-breeders and/or immatures are principally involved in the autumn movements off the Egyptian north coast. If this is indeed the case these movements are independent of the pattern noted in Western Europe.

One alternative explanation for the described autumn movements is that these skuas are non-breeding birds, which have summered in the eastern Mediterranean Sea. GREMPE (1981) has suggested this area as a summering area as well. However, GREMPE (1981) further suggested that skua records from the Black Sea are a result of a small but regular overland migration from the breeding areas. The possibility exists that these skuas found in the Black Sea during summer and autumn are non-breeding visitors. The only records from the Black Sea for which age information is available are 11 adult and 7 immature Arctic Skuas from Bulgaria (late July to late September) (GREMPE 1981).

Both spring and autumn migration have been reported from inland Russia (DEMENTIEV & GLADKOV 1951), but data are too limited to elucidate overland migration.

An overland migration in autumn may be the source for a minor part of the skuas reaching Egypt; however, it seems reasonable to assume that most of the Egyptian autumn records are of non-breeding birds on passage from summering waters in the eastern Mediterranean and/or perhaps Black Sea to their wintering areas.

It is unknown in which direction skuas leave Egyptian waters. Almost all observations are from the Mediterranean coast. The only exceptions are two records of Arctic Skuas, which ap-

peared to be moving towards the Red Sea: 29 August 1944 group of four individuals flying along the Suez Canal near Kasfareet (L. BOULDIN) and 4 November 1981 one adult flying south over the Suez Canal near Suez (R. G. BIJLSMA). There are a few autumn records of unidentified skuas from the Egyptian Red Sea.

It is difficult to interpret the new information with the migrational pattern in the literature. URBAN & BROWN (1971) mentioned both species as uncommon passage visitors off the coast of Eritrea, but presented no details on seasonality. In the Arabian Gulf both species occur from August on, but in smaller numbers than in spring (BUNDY & WARR 1980, WALKER 1981). STRICKLAND (1973) mentioned a definite passage of Arctic Skua at Masirah Island, southeast Oman, from July to September, but did not mention Pomarine Skua. TUCK (1974) reported migration of Pomarine Skua during October in the Persian Gulf. Small movements of Pomarine Skuas, mainly in autumn, have been noted in the Aral Sea (DEMENTIEV & GLADKOV 1951), in Armeniya (AJRUMJAN et al. 1968) and in the western Black Sea (GREMPE 1981, VAN IMPE 1969). In the southern Caspian region the Pomarine Skua has been recorded regularly in autumn (FEENY, ARNOLD & BAILY 1968).

At the Straits of Gibraltar Arctic Skuas are considered common migrants (August to October and March to April). Here a few birds are seen in winter and summer. The Pomarine Skua is considered a scarce migrant near Gibraltar in May and from September to October (GARCIA 1971). In Italy both species are considered regular with juveniles being more common than adults (SORCI et al. 1971). However, details are few. In a two year study in coastal Algeria, JACOB (1983) mentioned few, but regular, numbers of Arctic Skua from mid-October to May and one record of Pomarine Skua in November. In Tunisia Arctic Skuas have been observed from September to May, although the data are believed to be incomplete (THOMSEN & JACOBSEN 1979). MAYAUD (1983) reported Arctic Skua to be a comparatively frequent winter visitor to the North African Mediterranean Sea coast, with records east to Syria and Lebanon.

Ringling recoveries

There are a few ringling recoveries of Arctic Skuas in the eastern Mediterranean: a Russian bird (2nd calendar year) shot in March in Greece (GREMPE 1981) and a Finnish bird (juvenile) in mid-October in Egypt (HILDEN 1971). Juveniles from Scotland have been recovered in Syria and Lebanon (CRAMP & SIMMONS 1982). The Egyptian recovery illustrates that first-year birds can reach the country by mid-October.

4.2. Long-tailed Skua

This species is rare in Egypt and adjacent waters (table 4). Wintering Long-tailed Skuas have been observed in large numbers off Namibia, southwest Africa (CRAMP & SIMMONS 1982, GLUTZ VON BLOTZHEIM & BAUER 1982), and perhaps some individuals round the southern point of Africa into the Indian Ocean. One record of two adults in Natal, South Africa, was the first reported from that area (SINCLAIR 1983).

September 1981 records of Long-tailed Skuas at Lake Bardawil differ strikingly in age composition from Arctic and Pomarine Skua: 2 out of 7 were first-years (table 4). In northern Russia Long-tailed Skuas fledge in early to mid-August and are still dependant on their parents for 10–17 days (GLUTZ VON BLOTZHEIM & BAUER 1982). These records of first-year Long-tailed Skuas indicate that a transcontinental migration can occur, though it is not fully excluded that a sea-route was taken (minimum distances are 4,300 km and 7,600 km, respectively).

The only other positive record of Long-tailed Skuas in the Middle East is four adults in the Persian Gulf, off Oman, on 10 May 1977 (WALKER 1981). The only known East African records are from Kenya, one bird in August 1961, and two birds in October 1980 (BACKHURST et al. 1973, MOORE 1981).

In the Bosphorus, Turkey, two adults or second year Long-tailed Skuas were seen on 29 September 1979 (GLUTZ VON BLOTZHEIM & BAUER 1982). Long-tailed Skuas have also been reported in Italy, Malta and Turkey (CRAMP & SIMMONS 1982). MAYAUD (1983) did not mention any northwest African records from the Mediterranean Sea. Apart from the records near Eilat mentioned in table 4 there is a record from the Mediterranean coast of Israel: 9 February 1976 one found dead near Beit Yanai (Tel Aviv University Museum no 9301, S. M. GOODMAN in litt.). In inland central and eastern Europe this species is a rare visitor or vagrant, although more frequently recorded than Arctic and Pomarine Skua (GLUTZ VON BLOTZHEIM & BAUER 1982).

4.3. Great Skua and/or South Polar Skua

No specimens of either species have been collected in the area. The occurrence of South Polar Skua north of the equator has only been recently discovered (DEVILLERS 1977). Immature birds are known to reach the Northern Pacific and the North Atlantic during the southern hemisphere winter (GLUTZ VON BLOTZHEIM & BAUER 1982).

MÖRZER BRUYNS & VOOUS (1965) suggested that two records from the Red Sea and three records from the Mediterranean Sea off Port Said (April, May, June) are of "great" skuas from the southern hemisphere. In the Arabian Sea the South Polar Skua is considered a rare visitor between March and September (MÖRZER BRUYNS & VOOUS 1965, BAILEY 1966).

Great Skuas are regular winter visitors to the western Mediterranean, though records are known from the whole year (CRAMP & SIMMONS 1982, MAYAUD 1983). There are 22 ringing recoveries in the Mediterranean of birds ringed in Scotland. Records of Great Skuas have been claimed from Yugoslavia, Turkey, Malta (CRAMP & SIMMONS 1982), Greece (MÖRZER BRUYNS & VOOUS 1965), Libya (BUNDY 1976) and Israel (U. PAZ in litt.).

5. Summary

Recent records have shown that skuas (Stercorariidae) occur regularly in the Middle East.

Significant spring migration is mainly recorded at Eilat (Israel). Arctic Skuas (*Stercorarius parasiticus*) and Pomarine Skuas (*S. pomarinus*) (3:1 in numbers) are both regular with the former peaking in April and the latter in May. A few Long-tailed Skuas (*S. longicaudus*) have been recorded as well. Almost exclusively adult, light-phased birds are involved in these movements. It is suggested that in spring skuas come from the wintering grounds around southern Africa into the Indian Ocean and then north to Eilat, from where they undertake a direct transcontinental migration towards arctic breeding grounds in northern Eurasia. However, with our present information it is not possible to determine the regularity and magnitude of this spring migration.

There are several summer records of Pomarine and Arctic Skua from the Mediterranean coast of Egypt and the northern Red Sea.

Regular movements in autumn, so far mainly recorded on the northcoast of Sinai, are predominated by Arctic Skuas and only a few Pomarine Skuas occur (10:1 in numbers). In contrast to the spring migration a significant portion of the skuas recorded (29% of all Arctic) are dark phased adults or immature birds, but no juveniles (first calendar year) have been identified. It is suggested that the movements are more likely of non-breeding birds summering e.g. in the eastern Mediterranean (and perhaps Black Sea) rather than a result of transcontinental autumn migration from the breeding areas. A few Long-tailed Skuas have been recorded, and in contrast to the two regular species juveniles have been recorded, which may indicate transcontinental autumn migration.

There are only a few winter records of Pomarine and Arctic Skua in the region.

Great Skua (*S. skua*) and/or South Polar Skua (*S. maccormicki*) have been recorded a few times - mainly in the Mediterranean. No specimens have been collected.

6. Zusammenfassung

Zum Vorkommen von Raubmöwen (Stercoraridae) in Nahost, speziell in Ägypten und dem nördlichen Bereich des Roten Meeres

Raubmöwen sind – wie Beobachtungen der letzten Zeit gezeigt haben – in Nahost keine Ausnahmeerscheinung.

Im Frühjahr ist vor allem bei Eilat/Israel stärkerer Raubmöwen-Zug festzustellen. Regelmäßig zu beobachten sind Schmarotzerraubmöwen (*Stercorarius parasiticus*) und Spatelraubmöwen (*S. pomarinus*) (Häufigkeitsverhältnis 3:1), erstere mit Höhepunkt im April, letztere im Mai. Einzelne Falkenraubmöwen (*S. longicaudus*) wurden ebenfalls gemeldet. Bei den beobachteten Raubmöwen handelt es sich fast ausschließlich um adulte Vögel der hellen Phase. Die Verfasser vermuten, daß die im Frühjahr beobachteten Raubmöwen aus ihren Überwinterungsgebieten vor dem südlichen Afrika über den Indischen Ozean nach Eilat gekommen sind, von wo sie dann ein transkontinentaler Zugweg direkt zu ihren arktischen Brutgebieten im nördlichen Eurasien führt. Doch reicht das bisherige Beobachtungsmaterial zur genaueren Klärung des Zugverhaltens nicht aus.

Von der Mittelmeerküste Ägyptens und der nördlichen Region des Roten Meeres liegen auch mehrere Sommerbeobachtungen von Spatel- und Schmarotzerraubmöwen vor.

Beim vor allem an der Nordküste der Sinai-Halbinsel zu beobachtenden Raubmöwen-Herbstzug beträgt das Häufigkeitsverhältnis von Schmarotzer- zu Spatelraubmöwen etwa 10:1. Im Gegensatz zum Frühjahrszug gehört ein relativ großer Teil der beobachteten (adulten und immaturen) Raubmöwen zur dunklen Phase (bei der Schmarotzerraubmöwe 29%). Jungvögel im ersten Kalenderjahr konnten nicht beobachtet werden. Möglicherweise handelt es sich bei den im Herbst gesichteten Raubmöwen um z. B. im östlichen Mittelmeer (und vielleicht auch im Schwarzen Meer) übersommernde Nichtbrüter und nicht um Zuzügler aus den Brutgebieten. Unter den wenigen im Herbst beobachteten Falkenraubmöwen befanden sich dagegen auch Jungvögel im ersten Kalenderjahr, was auf transkontinentalen Herbstzug bei dieser Art hindeutet.

Aus der Beobachtungsregion liegen nur sehr wenige Winterfeststellungen von Spatel- und Schmarotzerraubmöwen vor.

Einige Male wurden – hauptsächlich im Mittelmeerraum – auch Skuas (*S. skua*) und/oder Antarktische Raubmöwen (*S. maccormicki*) gesichtet. Beleg-Exemplare wurden nicht gesammelt.

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