Migration patterns of some regularly occurring waders in Bahrain 1990-1992

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INTRODUCTION

The Persian Gulf harbours large numbers of Palearctic waders both on migration and in winter. These have attracted considerable attention during the recent ten years (see for example Evans & Keijl (1993) for an overview). When I arrived in Bahrain in October 1989 I was impressed by the numbers of waders but surprised over the lack of detailed information on numbers. I could only find figures from scattered and incomplete wader counts in the Bahrain Natural History Society's files and the only publication dealing with this group of birds in Bahrain was a short paper by Tucker (1985). After an initial reconnaissance period in late 1989, I set out to perform regular, systematic counts of waders at certain tide roosts. These counts continued until December 1992, shortly before I left the island. This paper summarises the abundance of commoner species recorded and is adapted from a forthcoming publication on bird migration patterns in Bahrain (Hirschfeld in prep.).

Wader ringing was initiated in Bahrain in autumn 1991 and has continued annually since (Hirschfeld *et al.* 1992; Hirschfeld *et al.* in press; Mohamed *et al.* in prep.).

METHODS

The four main roosting areas described below were selected as study sites (Map 1). Only my own counts were included in the statistics in order to avoid anomalies caused by different observers' identification criteria and census methods. Each site was normally covered within one hour of high tide once in each ten-day period throughout the year. Due to annual leave and other reasons, the sites could however not be covered every ten-day period in the same year, so counts have been combined for all three different years.

The graphs present an average of all (1-3) counts (regardless of the year) for each ten-day period (except for Lesser Golden Plover *Charadrius mongolus* which shows all records). Inevitably, some ten-day periods were better covered than others. Each ten-day period average has then been added, in running mean format, to the averages of the period before and the period after, and divided by three to even out aberrant peaks caused by annual fluctuations in wader numbers or weather/tides. Counts from different roosts have been combined in a few cases (for example Greenshank *Tringa nebularia*) where the average number throughout the year did not differ more than ± 20% between roosts. In those cases where it differed more (for example Terek Sandpiper *Tringa cinereus* and Redshank *T. totanus*) counts have been used from one roost only. Roosting sites used for each figure are indicated below each graph.

Note that wader numbers have *not* been correlated with roost size in any way, and also that the lumping of counts from different years prevents any analysis of annual fluctuations. Unidentified waders have not been included, with the exception of the two species of Sand Plovers, Dunlin *Calidris alpina* and Curlew Sandpiper *Calidris ferruginea* which have been analysed as unidentified of either species. A broken line in a graph indicates an extrapolation of values, due to insufficient observer coverage.

Histograms have been used for species which occur in lower numbers, and these show actual number of individuals per month at *all* sites (*i.e.* sites other than the four described below).

It should be kept in mind that the state of the tide varies seasonally. The high tide during the winter months is the 'lowest' high tide of the year, sometimes reaching almost a metre below the highest late summer high tide. During such conditions, waders have more roosting sites to choose from and will then be scattered out and perhaps missed by a single observer trying to count them. The comparatively low winter numbers for some species are thus partly caused by this factor, but also by generally smaller numbers overwintering.

Information on species status in neighbouring countries have, where not acknowledged, been taken from Bundy *et al.* (1989), Stagg (1987), Richardson (1990) and Oman Bird List edition 3. The first sentence in each species account details status in Bahrain derived from Nightingale & Hill (1993) and my own observations.

STUDY SITES

The following sites (Map 1) were used as study sites for waders as they regularly harboured large numbers during high tide:

ASRY, Muharraq island (50°39.5' E, 26°13' N): ASRY

Consists of sandy beaches and one large, sheltered lagoon near the tip of Muharraq island. Part of the lagoon lies inside restricted area and was thus minimally disturbed.

Ras al Busaytin, Muharraq island (50°36' E, 26°17' N): RB

An area of disused masts and concrete fundaments which attracted certain species of waders in high numbers. Destroyed by land-filling in summer of 1992.

BAPCO Bay, Sitra island (50°38' E, 26°9' N): BAPCO

Sandy beaches and a sheltered bay inside a restricted area belonging to the national oil refinery and virtually undisturbed. Species composition is similar to ASRY.

Sanad mangroves marsh, Bahrain island (50°36' E, 26°09' N): MAN

The last, polluted, remnants of mangrove on the island, now belonging to the Environmental Protection Committee. Situated in the southern part of the important Tubli Bay, south of Manama.

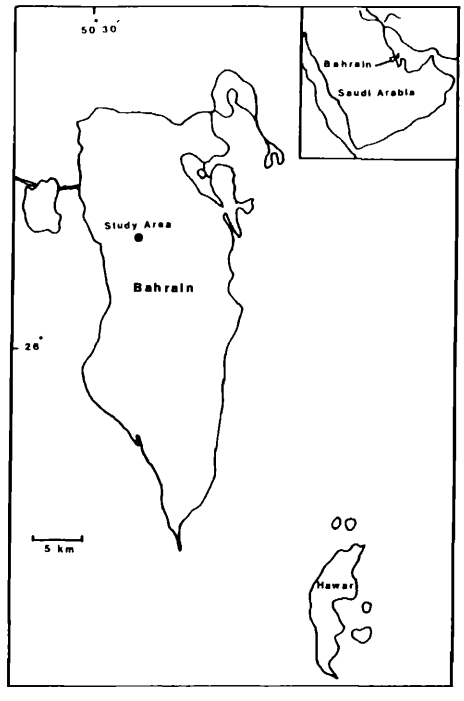
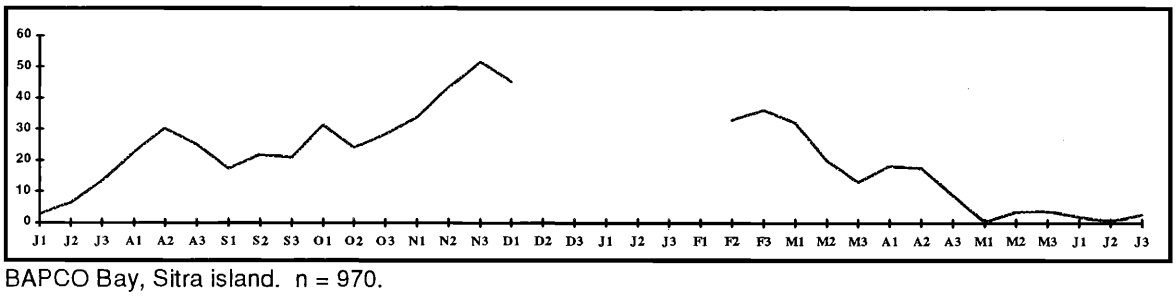


Fig. 1 Location of Bahrain and the study area

SPECIES ACCOUNTS

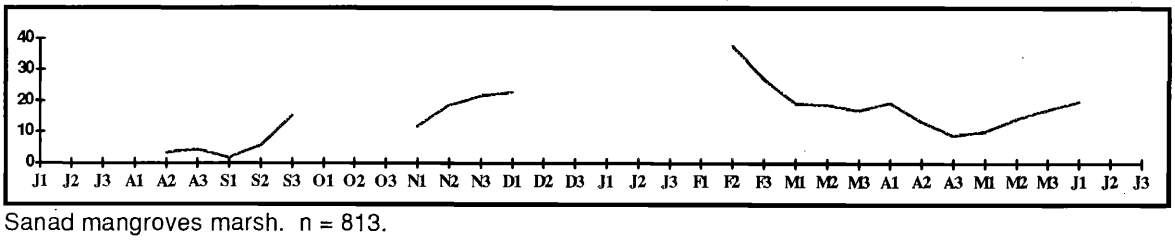
Oystercatcher *Haematopus ostralegus*



BAPCO Bay, Sitra island. n = 970.

Common migrant and winter and summer visitor in small numbers. The main stronghold was BAPCO Bay where a maximum of 68 were counted on 19 November 1991. There was a build-up of adults at the end of July and August and then a second peak (presumably of juveniles, but not positively aged as they prefered roosting areas too far away from the counting point) during October and November. Oystercatchers started to depart in February and March and all, except for a few summering birds, were gone by May. All birds showed characters (in the field) of the subspecies *longipes* which is known to occur in the Gulf (e.g. Uttley *et al.* 1988; Evans & Keijl 1993).

Black-winged Stilt *Himantopus himantopus*

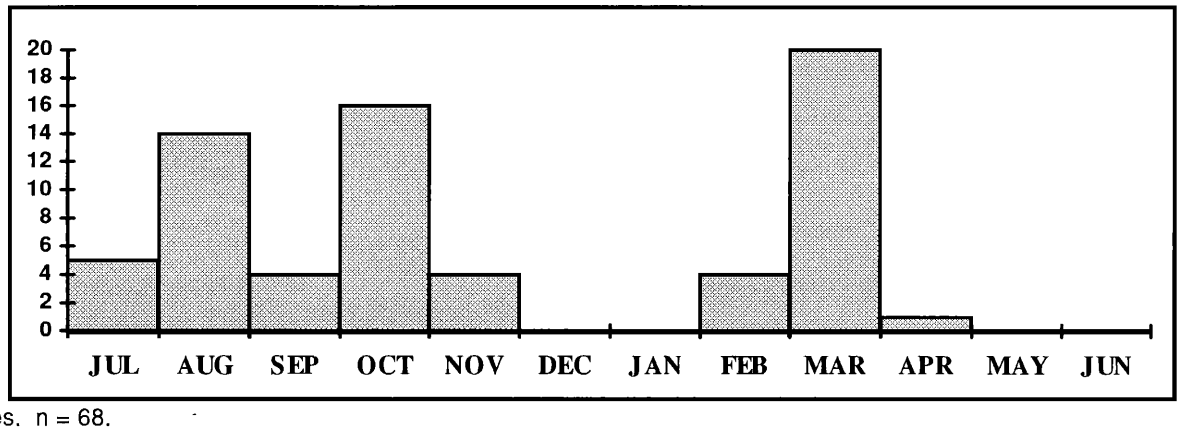


Sanad mangroves marsh. n = 813.

Recorded in all months and has bred in small numbers since 1990 when colonies were established in the Sanad mangroves, Riffa and the Dumistan area. The main concentrations of migrant/wintering birds were normally found at Sanad. It was not possible to separate breeding birds from migrants, but the figure excludes pulli. Wintering birds, presumably arriving from other areas, occured during December to February. The decrease in April was probably due to local birds disappearing into the vegetation to nest, and the decrease in July and August was probably caused by post-breeding dispersal by breeders. Family groups were often recorded in the few remaining wetlands of Bahrain at this time. The largest congregation was recorded at Nakhl Lawzi where 78 were counted 19 November 1992.

Black-winged Stilt has recently started to colonise Arabia with breeding taking place in the UAE, Qatar, Oman and the Eastern Province of Saudi Arabia (Kirwan 1992). The occurrence pattern in the UAE (or at least Dubai creek, S. Aspinall *pers. comm.*) is slightly different from that of Bahrain as most birds are seen there from July to December.

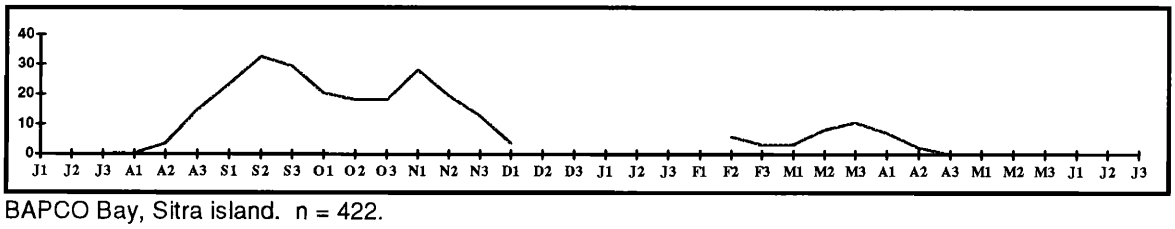
Little Ringed Plover *Charadrius dubius*



All sites. n = 68.

Regular passage migrant February to April and July to November. Little Ringed Plover breeds in the UAE, Oman and - from time to time - in the Riyadh region but has not yet been recorded breeding in Bahrain. Small numbers winter in Arabia. The figure shows the number of birds (excluding long-staying individuals within the same month) recorded. The species was rarely seen in the traditional wader roosts on the shore but seemed instead to prefer inland habitats like the wet areas around Dumistan.

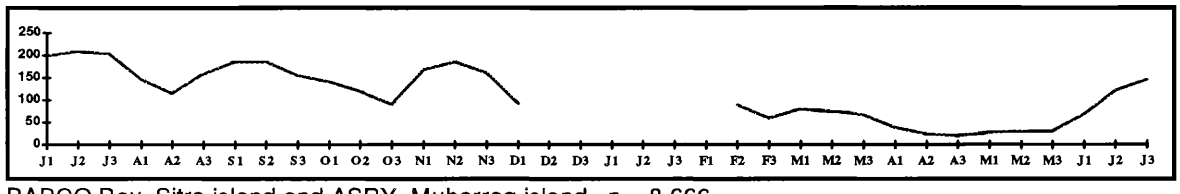
Ringed Plover *Charadrius hiaticula*



BAPCO Bay, Sitra island. n = 422.

A regular migrant, common in autumn but scarcer in winter and spring. Nightingale & Hill (1993) recorded passage also in May. The decrease in November suggests that most Ringed Plovers passing Bahrain were heading for wintering areas further south. Spring migrants passed Bahrain in comparatively small numbers during March and April and Evans & Keijl (1993) were also surprised by the low numbers in spring in Saudi Arabia. The Siberian subspecies *tundrae*, which mainly migrates to tropical Africa, occurs in Bahrain (Hirschfeld *et al.* in press) which agrees with Uttley *et al.* (1988).

Kentish Plover *Charadrius alexandrinus*

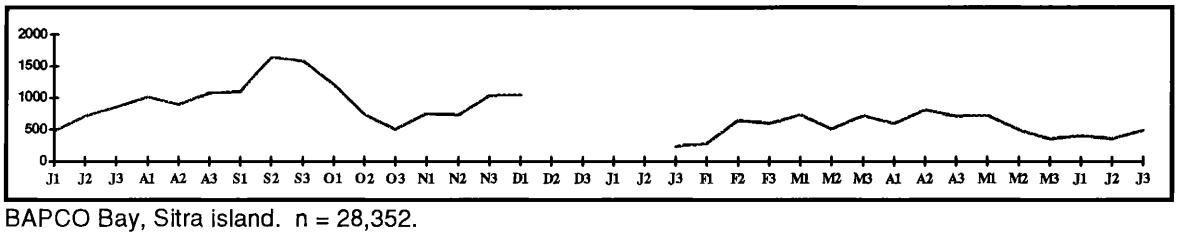


BAPCO Bay, Sitra island and ASRY, Muharraq island. n = 8,666.

A common breeder, which probably also occurs as a migrant and winter visitor. The largest congregation was 470 at BAPCO Bay on 14 November 1990. The numbers fluctuated widely and were difficult to interpret, due to this species breeding occurrence. Many different populations are possibly involved.

Migrant Kentish Plovers are said to pass through the Riyadh region of (inland) Saudi Arabia in March to May and August to October. The migration of Middle Eastern/ Central Asian Kentish Plovers is otherwise virtually unknown (Cramp *et al.* 1983).

Greater and Lesser Sand Plover *Charadrius leschenaultii and Ch. mongolus*



BAPCO Bay, Sitra island. n = 28,352.

These two species often pose identification problems, especially in roosts, and much has already been written about their separation in the field (*e.g.* Taylor 1982; Hirschfeld 1991; Hockey 1993; Hirschfeld & Stawarczyk 1993). It was not always possible to identify roosting individuals specifically, not just because of the similarity between the two but also because of light conditions and observation distance.

Both species are common throughout the year. Nightingale & Hill (1993) consider Lesser Sand Plover passage periods as March to April and July to October, and Greaters as March to April and June to August.

Numbers started to build up in June and reached a first peak in the beginning of August and a second in mid September. After that there was a decrease followed by a new build-up at the end of November and beginning of December. Numbers then decreased to reach their lowest in the end of January. In spring most migrants left Bahrain at the beginning of May. The largest concentration was 1,612 Sand Plovers at BAPCO Bay on 10 September 1990.

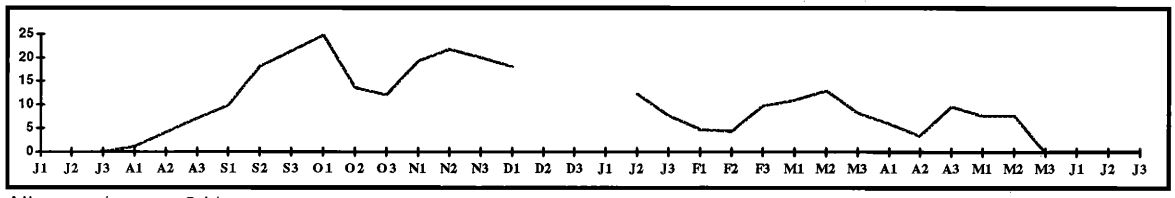
Spread throughout the year, 87.5% of identified birds in roost counts (n = 9,140) were Lesser Sand Plovers. The sample is too small to make a detailed, separate, analysis of monthly occurrence of each species, but indicates that the percentage of Greater Sand Plovers is at its lowest in January to February and April to May. It seems that the percentage of Greater Sand Plovers is highest in June and July, as I have observed in the UAE.

Juvenile Greater Sand Plovers turned up as early as in June (earliest date during the period was of two juveniles on 12 June). This conforms with the pattern in the UAE where juveniles are quite regular already in June. Juvenile Lesser Sand Plovers turned up much later, rarely before mid August.

Both the subspecies *columbinus* (Asia Minor to Afghanistan) and *crassirostris* (Transcaspia to Kazakhstan) of Greater Sand Plover were regularly recorded (all ringed birds in autumn 1992 were *columbinus* (Hirschfeld in press)). Roselaar (in Cramp *et al.* 1983) states that *columbinus* is not present in the Gulf after September (basing this on skins) but this statement could not be verified in Bahrain.

Bundy *et al.* (1989) and Gallagher & Woodcock (1980) consider that the subspecies *atrifrons* of Lesser Sand Plovers winter in the region, while Cramp *et al.* (1983) and Evans & Keijl (1993) consider *pamirensis* to winter. According to measurements, birds ringed in autumn 1992 belonged to both the *mongolus* (which includes the subspecies *mongolus* and *stegmanni*) and the *atrifrons* (which includes the subspecies *pamirensis*, *atrifrons* and *schaeferi*) groups of subspecies (Hirschfeld *et al.* in press).

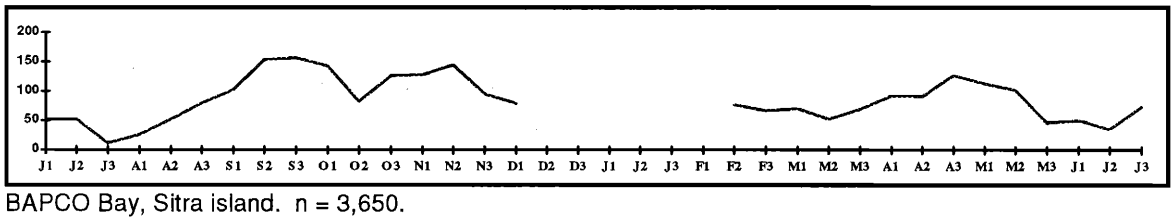
Pacific Golden Plover *Pluvialis fulva*



All records. n = 241.

Regular migrant and winter visitor July to March. Bahrain is on the extreme western edge of the species known wintering area but it is regularly recorded in the neighbouring states, increasingly so further east. Typically favoured agricultural areas around Dumistan, but the species was also seen regularly at the freshwater outlet at Ras Tubli and occasionally in high tide roosts among other waders. It showed a more even occurrence pattern than other waders. A slight increase in the end of February and March was probably caused by spring migrants passing through. The largest concentration was 28 at Hamalah Experimental Farm on 15 November 1991.

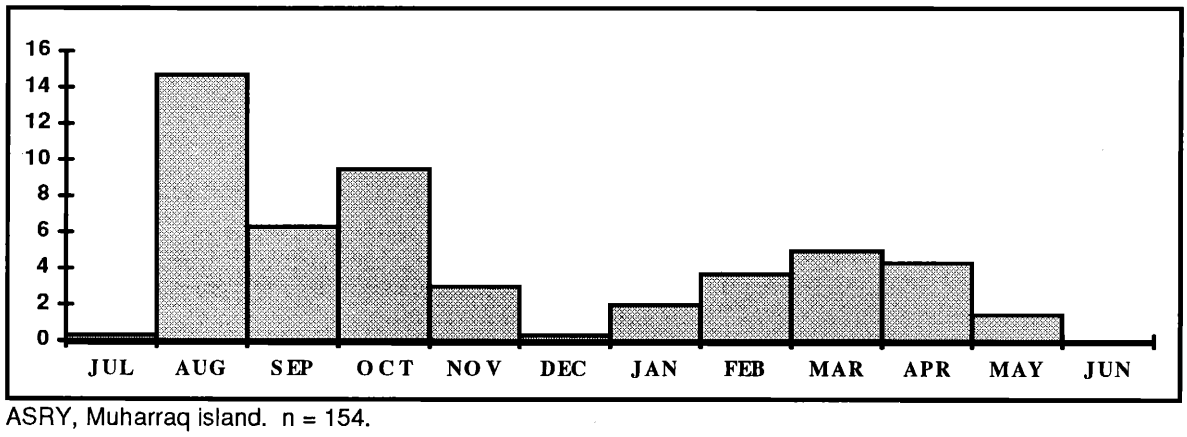
Grey Plover *Pluvialis squatarola*



BAPCO Bay, Sitra island. n = 3,650.

Common migrant recorded in all months. Winter numbers were fairly stable and a build-up of spring migrants commenced in March and peaked in April and early May. The largest numbers were recorded in BAPCO Bay at the end of September with 234 (23 September 1991) and 240 (24 September 1992). The pattern is similar to that of the UAE, with the exception of a heavy passage occurring in Bahrain in November.

Sanderling *Calidris alba*



ASRY, Muharraq island. n = 154.

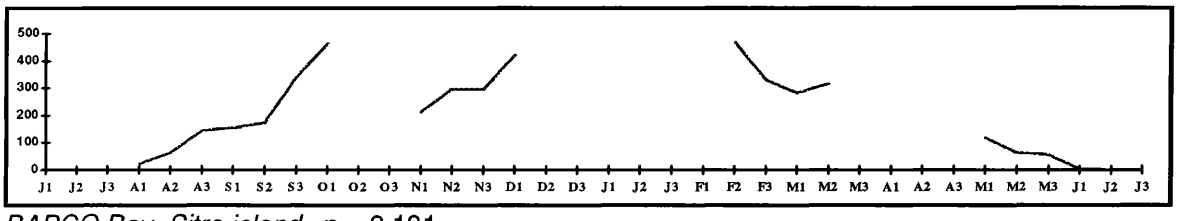
Regular migrant and winter visitor (rarely July) August to May with smaller numbers in winter. Nightingale & Hill (1993) consider spring migration to continue into early June. A Sanderling ringed in Italy in May 1950 was recovered in September the same year in Bahrain and could be explained by Siberian populations of Sanderlings performing a loop migration (Cramp *et al.* 1983).

The figure shows records at a coastal site, but the largest concentrations of Sanderlings did however occur inland at the Hamalah Experimental Farm where they fed on fly larvae in patches of chicken waste in the desert. The largest numbers were seen there in spring when the maximum, 169 on 5 May 1992, was also recorded. The series of counts from that interesting site are however incomplete but large flocks of waders are normally absent from there October to April. No Sanderlings were recorded there after 20 May, while birds on autumn migration were present from at least mid August (but no counts could be made there earlier in the summer).

Compare also Turnstone for this local phenomenon of inland occurrence.

A marked passage between April and mid June has been noted in the Eastern Province of Saudi Arabia, while Evans & Keijl (1993) mention highest numbers occurring there in the second week of May. Sanderlings often turn up inland in Saudi Arabia (Bundy *et al.* 1989) and in the UAE during spring passage. These late spring birds are probably from African-wintering populations which find an important staging post in the Gulf before they commence a long, non-stop overland flight to the tundra.

Little Stint *Calidris minuta*

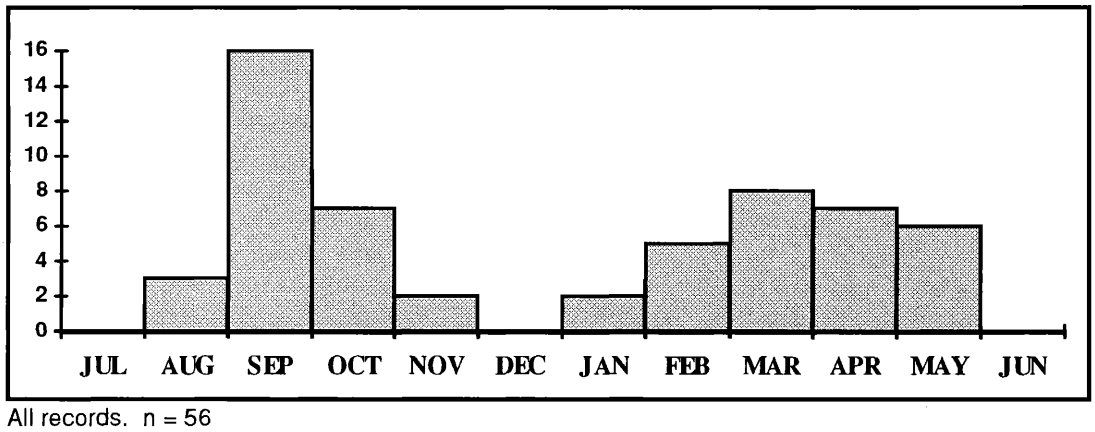


BAPCO Bay, Sitra island. n = 8,131.

Common migrant and winter visitor, rarely oversummering. There was a rapid build-up in July and August which peaked in September. In 1992, Juveniles started to turn up in early September with a main influx in mid month (Hirschfeld *et al.* in press). After a decrease in October, numbers built up again in November to fairly stable wintering numbers. A small peak in mid March pointed to spring migrants, Little Stints then gradually disappeared from Bahrain during April and May. The largest concentration was 730 at BAPCO Bay on 18 December 1991.

A Russian-ringed Little Stint was trapped in Bahrain in September 1992, but no information on its origins have been received to date (Hirschfeld *et al.* in press) and a Saudi-ringed Little Stint was recovered breeding in the Taimyr in summer 1993 (Newton 1994).

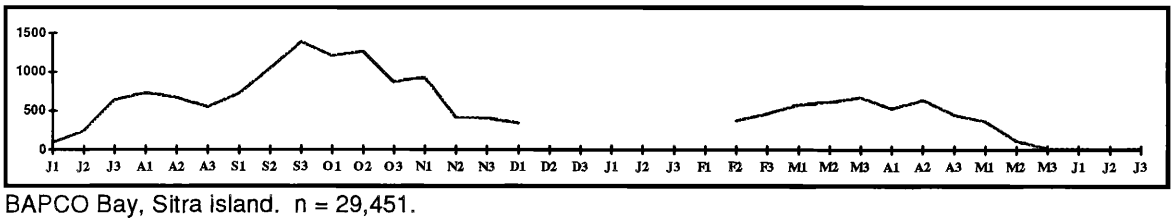
Temminck's Stint *Calidris temminckii*



All records. n = 56

Scarce migrant and winter visitor August to May. It usually preferred sites like Janabiyah reeds and Ras Tubli rather than open shores. The majority of autumn migrants turned up in September and most of the spring migrants in the period March to May.

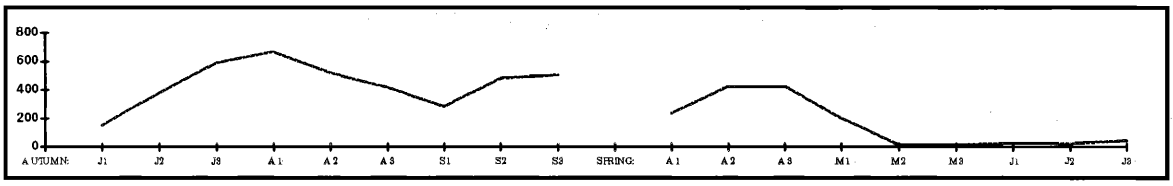
Dunlin and Curlew Sandpiper *Calidris alpina and ferruginea*



BAPCO Bay, Sitra island. n = 29,451.

Since these two species can be extremely difficult to separate in roosts in winter plumage (see for example Uttley *et al.* 1990), they have been combined in one figure. Figures 29 and 30 show the pattern of adult birds in summer plumage, which are easier to identify.

Curlew Sandpiper *Calidris ferruginea*

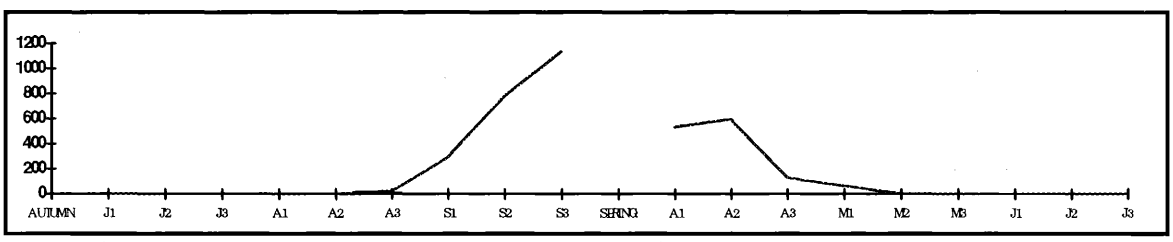


BAPCO Bay, Sitra island. Summer-plumaged individuals only. n = 9,084.

Common passage migrant and winter visitor. Winter numbers were very difficult to estimate but it is clear that the species is present in good numbers, probably thousands, in Bahrain in winter. The arrival in mid July consists exclusively of adults while juveniles started to arrive first in September. In spring most birds had left by mid May. The largest concentrations were 843 at BAPCO Bay on 20 August 1990 and 835 at the same place on 23 September 1991.

A flyway for Curlew Sandpipers migrating to Africa, some of them coming from as far east as the Lena river, crosses the Middle East (Cramp *et al.* 1983) and a Curlew Sandpiper ringed in South Africa in winter was controlled two and a half years later in the UAE (Uttley *et al.* 1988). It is abundant in winter in Oman where 15,700 were for example counted in January 1992 (Perennou & Mundkhur 1992).

Dunlin *Calidris alpina*



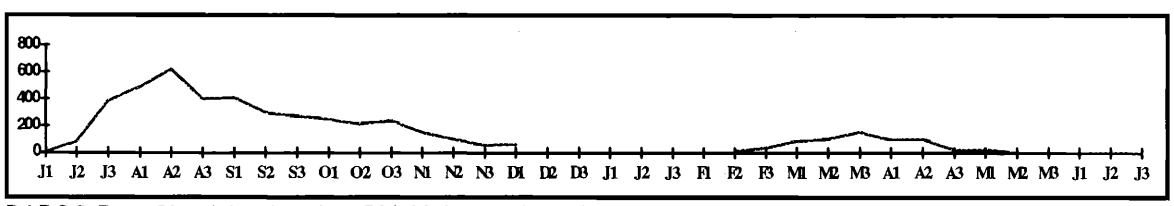
BAPCO Bay, Sitra island. Summer-plumaged individuals only. n = 7,752.

Common migrant and winter visitor, although most autumn migrants apparently do not arrive until in September (*contra* Nightingale & Hill 1993).

It had a markedly different migration pattern to Curlew Sandpiper and arrived a month later in Bahrain. This can be explained by the fact that virtually all adult Dunlins had newly moulted flight-feathers when they arrived in Bahrain and presumably had suspended their migration somewhere on the way to moult (Hirschfeld *et al.* 1992). This is also in line with observations in the UAE (Uttley *et al.* 1988) and Saudi Arabia (P. Symens *pers. comm.*). In 1992, a few juvenile Dunlins arrived together with adults in early September, but most juveniles did not turn up until the last ten days of September and October (Hirschfeld *et al.* in press.) that year. Dunlins left Bahrain approximately a month earlier in spring than Curlew Sandpipers did. The largest congregation was 1,780 at BAPCO Bay on 23 September 1991.

Dunlins trapped in Bahrain showed characters of a range of subspecies: *sakhalina*, *schinzii*, *alpina*, and the *"centralis"* form. A migrant *alpina* Dunlin, ringed in Sweden in autumn was recovered in Bahrain two years later (R. Staav *pers. comm.*). Evans & Keijl (1993) found *sakhalina* being the dominant subspecies in their spring study in Saudi Arabia. They also suggest that an influx of Dunlins that occurs in late April and early May consists of birds from another population than the wintering birds, which largely have departed from the Gulf at that time.

Broad-billed Sandpiper *Limicola falcinellus*

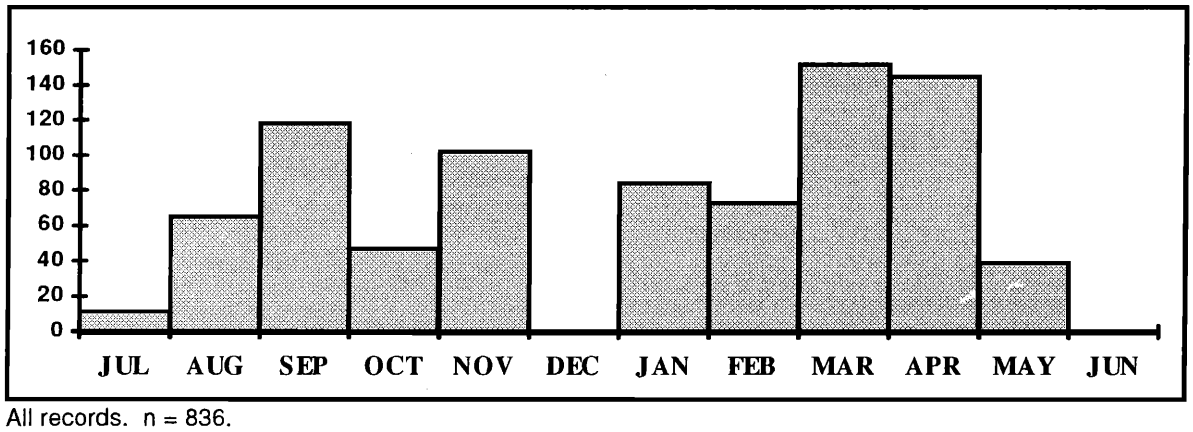


BAPCO Bay, Sitra island and ASRY, Muharraq island. n = 10,905.

Common migrant and winter visitor July to April, occasionally spring migrants occur in late May and early June. There was no marked late autumn peak, in contrast to other waders, but the species was present throughout October whereafter numbers tailed off. Spring migrants turned up in March and very few birds were seen after April. There was only one summer record: 3 at BAPCO Bay on 12 June 1992. The largest congregations were also at BAPCO Bay: 900 on 5 August 1990 and 895 on 31 August 1992. In some years large numbers can apparently be seen in November, for example 954, mainly juveniles, at ASRY on 2 November 1989 (pers. obs.) and are presumably the result of a good breeding season. The shores at Tubli Bay and Bahrain Fort are strongholds for wintering Broad-billed Sandpipers (unlike ASRY and BAPCO) and an estimate of the total wintering population in Bahrain is 1,500-2,000 birds.

It is apparently scarce in winter in Saudi Arabia while for example 5,077 were counted in Oman and 572 in the UAE in January 1992 (Perennou & Mundkhur 1992). The subspecies occurring in the Persian Gulf is the Fenno-Scandian *falcinellus* (*e.g.* Uttley *et al.* 1988; Evans & Keijl 1993).

Ruff *Philomachus pugnax*



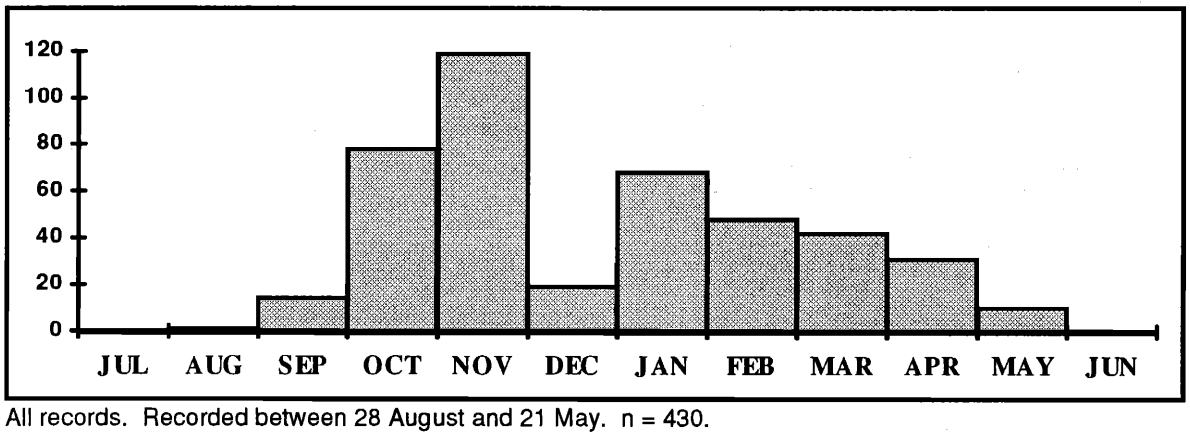
All records. n = 836.

Regular migrant, mainly inland and close to fresh water, in relatively small numbers. Comparatively few Ruff winter in the Gulf region, perhaps due to lack of suitable habitat.

Jack Snipe *Lymnocryptes minimus*

Scarce migrant (7 November to 9 April), favouring marshy areas such as Sanad and Janabiyah reeds. Some, presumably the same individuals, were seen in the same location throughout the winter. Peak occurence (6 records) in March.

Common Snipe *Gallinago gallinago*



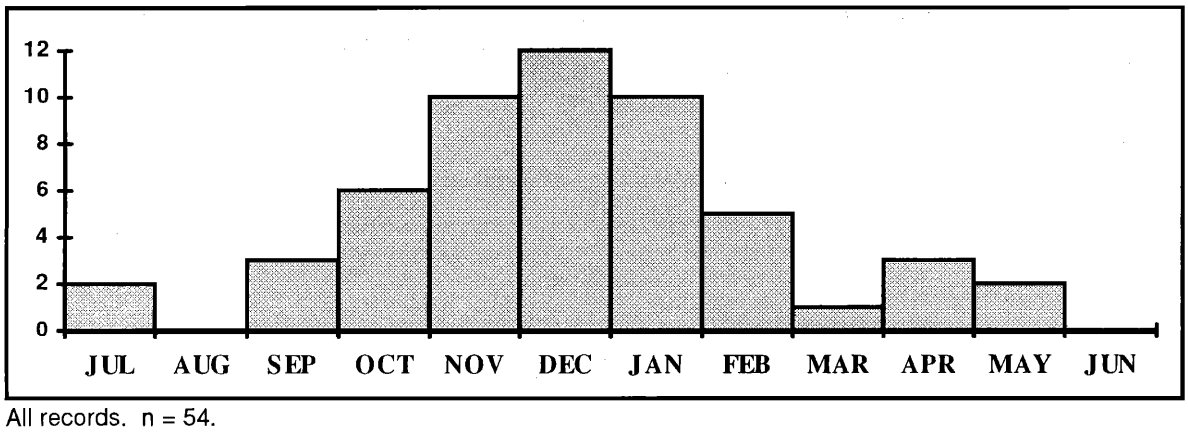
All records. Recorded between 28 August and 21 May. n = 430.

Regular migrant in marshes September to May, with one June record. The peak month was November, while a second peak in January (perhaps only in some years) probably is associated with influxes from wintering areas further north during cold weather, as in the winter of 1991/92. Numbers diminished after January.

Pintail Snipe *Gallinago stenura*

Rare migrant, first recorded in 1991 but probably a regular, overlooked visitor (see Hirschfeld in press). Nine records between 28 September and 8 May. One to two birds at Ras Tubli on 27 November 1992 were long-staying and seen at least until the beginning of January 1993. It is also regular in small numbers in the UAE and Oman on migration.

Black-tailed Godwit *Limosa limosa*

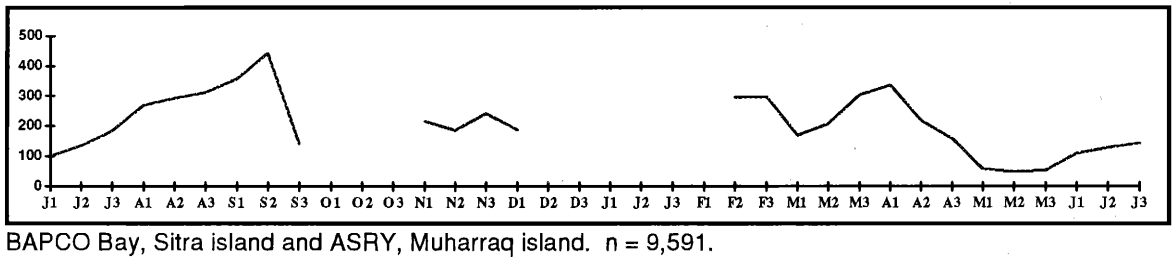


All records. n = 54.

Scarce migrant and winter visitor July to May, possibly summering in some years. Prefers the Tubli Bay area but rarely seen in coastal high tide roosts. Compared to other wader species, the main, late, arrival, in November to January, is notable.

The species is generally scarce on the Arabian side of the Persian Gulf and occurrences in winter/late autumn in the Gulf are probably associated with cold-weather movements from the normal wintering areas in Iran.

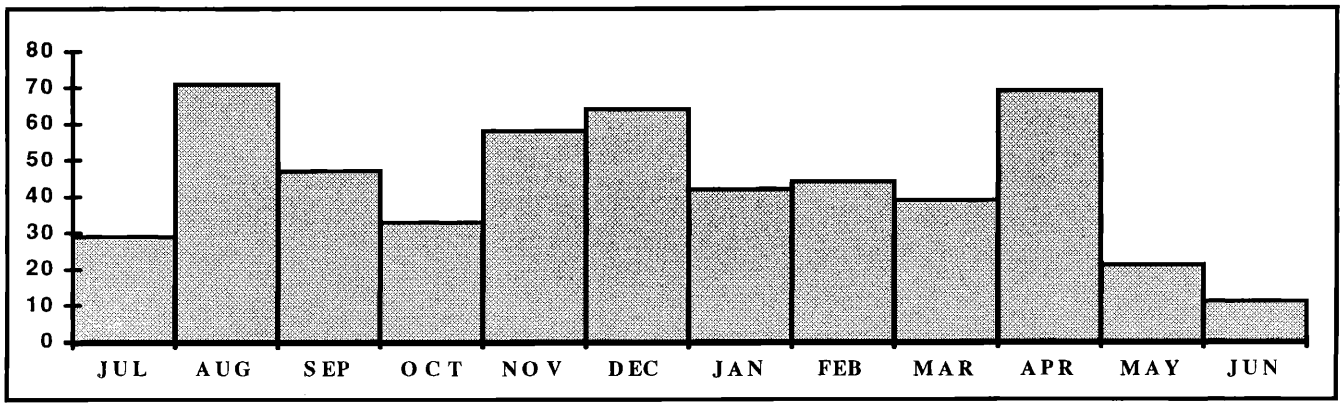
Bar-tailed Godwit *Limosa lapponica*



BAPCO Bay, Sitra island and ASRY, Muharraq island. n = 9,591.

Common migrant and winter visitor with small flocks summering. There was a build-up during July and August which peaked after the middle part of September. This was followed by a slight decrease to fairly stable wintering numbers. Spring migrants peaked in the beginning of April while May had the lowest numbers. The largest congregation was 574 at BAPCO Bay on 24 September 1992. Birds trapped in Dubai were of the nominate subspecies (Uttley *et al.* 1988).

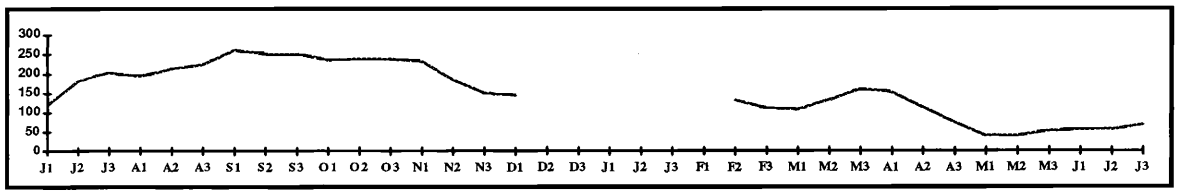
Whimbrel *Numenius phaeopus*



Ras al Busaytin, Muharraq island. n = 528.

Common migrant and winter visitor. Small numbers in summer. It seems to be comparatively numerous in winter in Bahrain compared to neighbouring countries. The main roost was at Ras al Busaytin but since this site was destroyed the ten-day counts in the figure are not complete for the autumn. The maximum count was 105 at Ras al Busaytin on 19 April 1991. Both the nominate race and *alboaxillaris* occur in the Gulf (Cramp & Simmons 1983).

Curlew *Numenius arquata*



BAPCO Bay, Sitra island and ASRY, Muharraq island. n = 13,109.

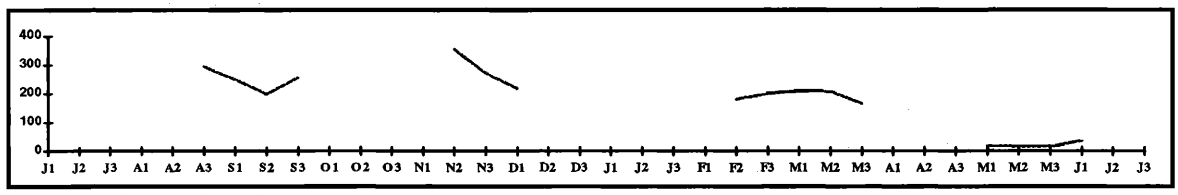
Common migrant and winter visitor, also summering. There was a rapid build-up in July and August while autumn numbers were fairly stable throughout until a decrease in November. Winter totals were more or less consistent and a peak in the end of March and beginning of April were presumably caused by spring migrants passing through Bahrain. The lowest numbers were found in May. The largest congregation was 346 at ASRY on 11 September 1990.

Evans & Keijl (1993) noted a small influx in late May. They suggested it might be caused by second-year, non-breeding birds. It is well-known (*e.g.* Bundy *et al.* 1989) that the subspecies occurring in the Gulf is the long-billed *orientalis*.

Spotted Redshank *Tringa erythropus*

Scarce migrant and winter visitor August to April (25 records). Prefers inland, freshwater habitats and rarely seen on the shore. Generally a scarce species in the region.

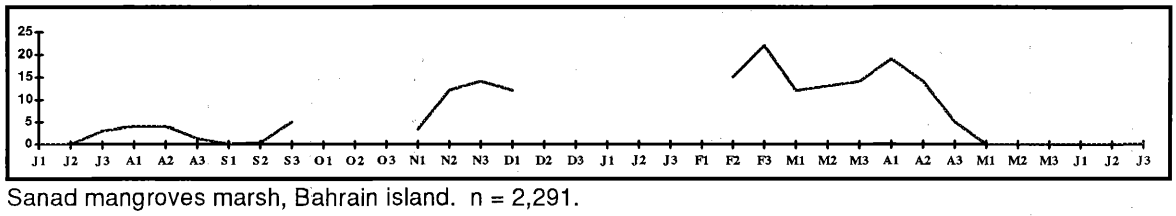
Redshank *Tringa totanus*



ASRY, Muharraq island. n = 6,946.

Common migrant and winter visitor often summering in small flocks. Numbers built up during June and July and reached a first peak in August and a second in November. Wintering birds had left by the end of April. Numbers were at their lowest in May. The largest count was 601 at ASRY on 7 November 1990.

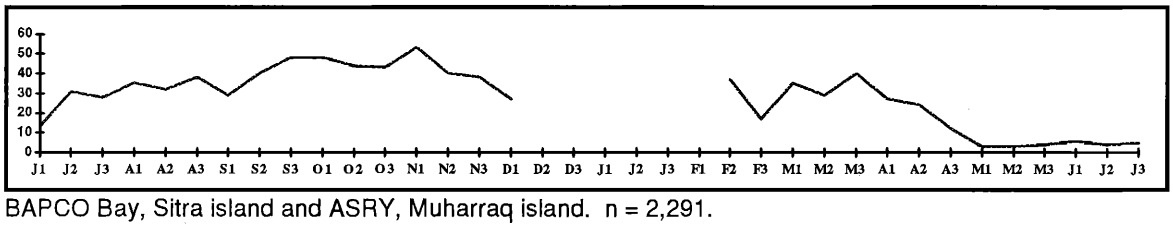
Marsh Sandpiper *Tringa stagnatilis*



Sanad mangroves marsh, Bahrain island. n = 2,291.

Scarce migrant July to April, preferring the Sanad and Tubli Bay areas. Unlike many other waders, peak numbers were found in spring, not autumn. The birds left rapidly in April and none were recorded during May or June. Marsh Sandpipers have possibly become more regular in Bahrain in recent years, but it is difficult to draw any safe conclusions due to lack of detailed wader counts before 1990. The maximum count was 56 at Sanad mangroves on 20 February 1992.

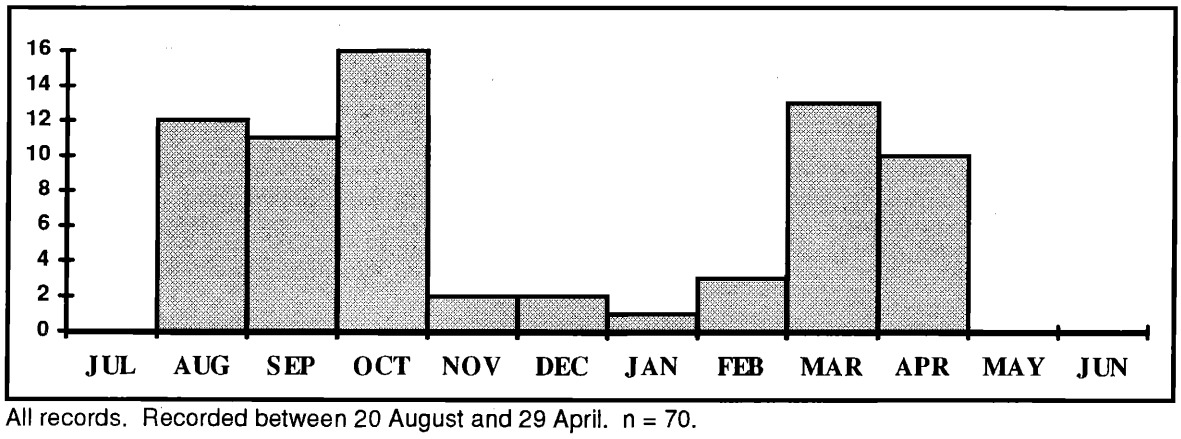
Greenshank *Tringa nebularia*



BAPCO Bay, Sitra island and ASRY, Muharraq island. n = 2,291.

Common migrant and winter visitor, summering in small numbers. Exhibited a more even occurrence pattern than many other waders. The largest congregation was 150 at BAPCO Bay on 23 September 1991. Evans & Keijl (1993) found seemingly higher numbers in mid to late April than in winter in Saudi Arabia, but this trend could not be clearly discerned in Bahrain.

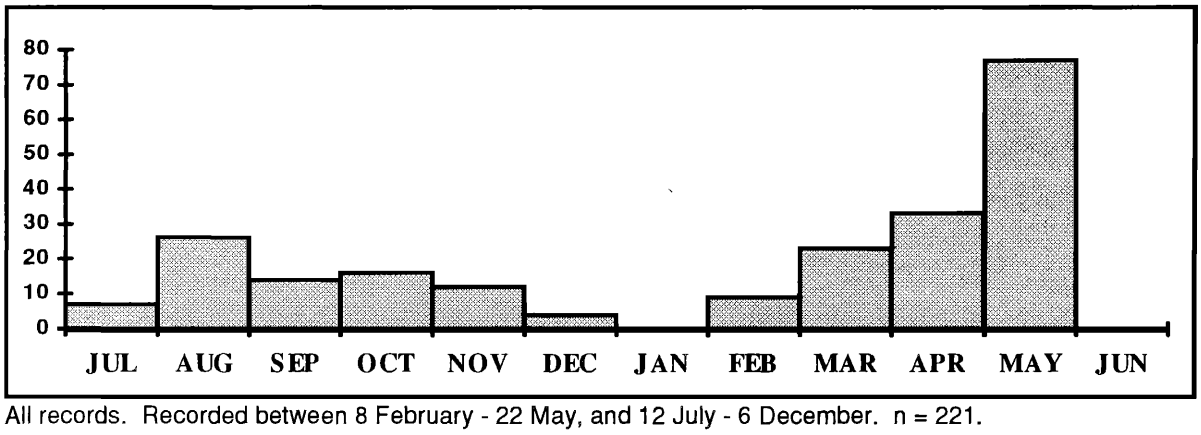
Green Sandpiper *Tringa ochropus*



All records. Recorded between 20 August and 29 April. n = 70.

Scarce migrant and rare winter visitor, Nightingale & Hill (1993) also mention records from May, June and July. Rarely seen at traditional wader roosts, preferring drainage ditches and marshes instead. The wintering population was apparently low, while migrants passed in small numbers during August to October and March to April. Groups of up to five birds were seen on a couple of occasions.

Wood Sandpiper *Tringa glareola*

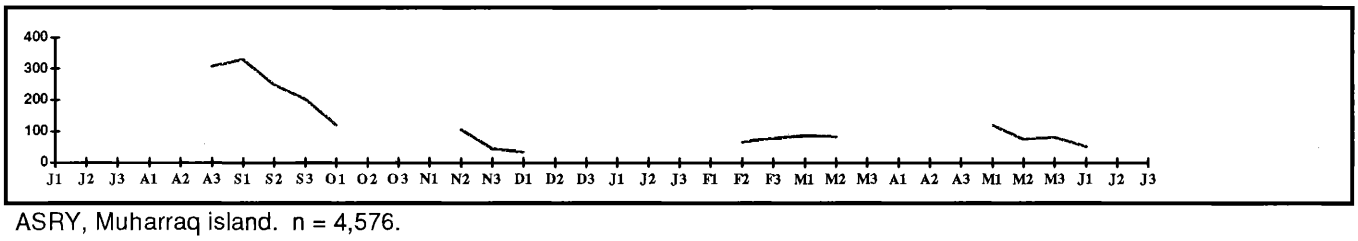


All records. Recorded between 8 February - 22 May, and 12 July - 6 December. n = 221.

Regular passage migrant in small numbers, also recorded June. Occurred mainly at Sanad and in other marshes, very rarely at coastal roosts. The peak in May was caused by two large flocks, one of 29 and the other of 34.

Most autumn migrants passed in August to November while spring migration mainly took place in March to May. Some birds probably wintered at Sanad, but were difficult to detect in the dense vegetation there.

Terek Sandpiper *Tringa cinereus*

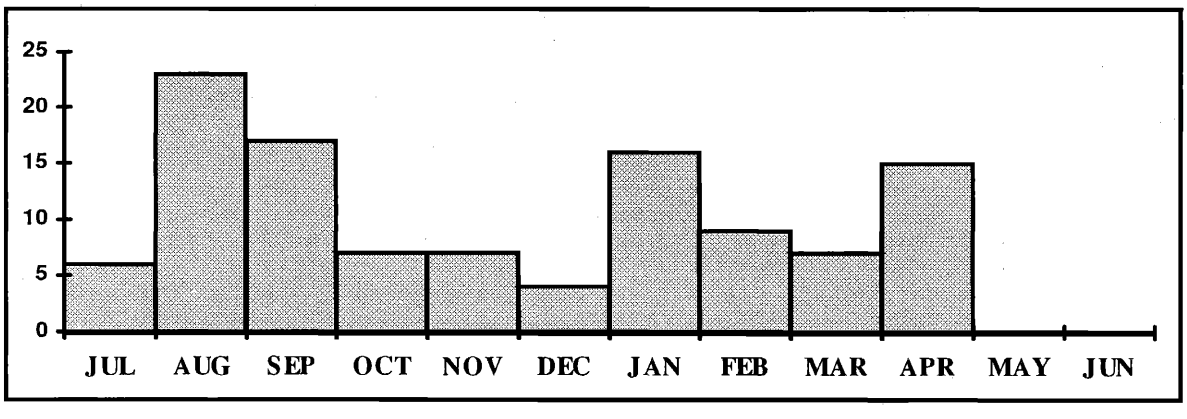


ASRY, Muharraq island. n = 4,576.

Common migrant, especially in autumn, but scarce winter visitor in small numbers. There was a big difference in numbers between BAPCO Bay and ASRY for this species. ASRY was the stronghold with a regular occurrence of Terek Sandpipers in all months, sometimes with flocks numbering several hundred. At BAPCO Bay numbers rarely reached more than 50 and the species was virtually absent there during the spring months. There was a build-up in late summer which culminated in the beginning of September. This was followed by a sharp decline and by December only wintering birds remained. Spring migration was not marked at all, with a gradual increase during March and April. Note however that there is a lack of data from April. Largest congregation recorded was 484 at ASRY on 17 August 1991.

Evans & Keijl (1993) recorded larger numbers in spring than in winter in Saudi Arabia and suggest that the Gulf coast of Saudi Arabia is an important spring refuelling site for Terek Sandpipers. This species presumably has different spring and autumn mgiration staging sites, see Evans & Keijl (1993) for a discussion on this.

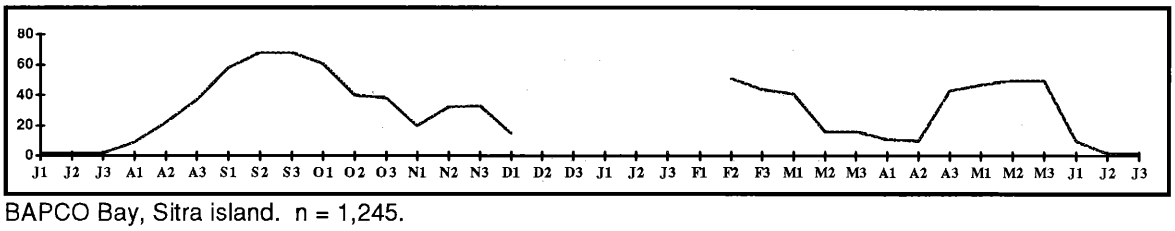
Common Sandpiper *Tringa hypoleucus*



All records. n = 111.

Regular migrant and winter visitor in small numbers (usually less than 10) July to April. It is rarely seen among other waders at high tide roosts, seemingly preferring ditches, marshes and fresh-water outlets instead. The main months of passage were August and September in autumn and April in spring. The peak in January was presumably caused by birds fleeing severe weather from wintering areas further north in January 1992.

Turnstone *Arenaria interpres*



BAPCO Bay, Sitra island. n = 1,245.

Common migrant and winter visitor in small parties. In common with Sanderling, this species occurred in its largest numbers at Hamalah Experimental Farm during the hot months of the year. Turnstones arrived later than most other small waders, numbers built up in August and peaked in September. Thereafter they decreased to stable winter numbers, seemingly augmented by more birds during December and January (but the counts during that time are insufficient to draw any safe conclusions). Numbers decreased during March and reached a low by the end of April, when they again increased very rapidly and peaked in May. The largest congregation was 495 Hamalah Experimental Farm on 14 May 1992.

The late peak in May could have been caused by a new arrival of long-distance migrants having wintered in Africa and using Bahrain as a staging point before flying (non-stop?) to the tundra (*c.f.* Sanderling). See Cramp & Simmons (1983) and Evans & Keijl (1993) for a discussion of this. April and May influxes have also been noticed in the Eastern Province of Saudi Arabia while spring passage is less obvious than autumn passage in the UAE.

OTHER SPECIES OF WADERS RECORDED DURING 1990-1992

Avocet	*Recurvirostra avoceta*
Crab Plover	*Dromas ardeola*
Stone Curlew	*Burhinus oedicnemus*
Cream-coloured Courser	*Cursorius cursor*
Collared Pratincole	*Glareola pratincola*
Black-winged Pratincole	*Glareola nordmanni*
Kittlitz's Plover	*Charadrius pecuaris*
Caspian Plover	*Charadrius asiaticus*
Golden Plover	*Pluvialis apricaria*
Red-wattled Plover	*Hoplopterus indicus*
Sociable Plover	*Chettusia gregaria*
White-tailed Plover	*Chettusia lecura*
Lapwing	*Vanellus vanellus*
Great Knot	*Calidris tenuirostris*
Long-toed Stint	*Calidris subminuta*
Woodcock	*Scolopax rusticola*
Red-necked Phalarope	*Phalaropus lobatus*

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