Michael Schmitz.

Marsh Sandpiper

Tringa stagnatilis

Geographical variation and distribution

The Marsh Sandpiper is a monotypic species breeding across a broad belt in the temperate zone from Bulgaria, Romania and Belarus east through central Ukraine, southern Russia and northern Kazakhstan to about 115ºE in Eastern Asia. It occurs north to 56º20'N in the Urals and 57ºN in Western Siberia, and south to 47-49ºN in southern Russia, Turkestan and northern Mongolia. It formerly bred in Austria, Hungary and Slovakia, and in recent years has bred more or less regularly in very small numbers in Denmark (since 1986), Finland (since 1983), Latvia (since 1974) and Poland (since 1988) (Snow & Perrins 1998). It has recently been found breeding in Sweden (E. Hirschfeld *in litt.*).

West Eurasian populations winter sparingly in the eastern Mediterranean, southern Iraq, southern Iran and the Arabian Peninsula, and commonly in sub-Saharan Africa south to the Cape. The centre of the wintering range is probably in Eastern Africa, where it is one of the commonest waders at many of the Rift Valley lakes in Ethiopia, Kenya and Tanzania (Urban *et al.* 1986). In Southern Africa, the main wintering concentrations are in the highveld plateau and Okavango Delta (Underhill 1997). The Marsh Sandpiper occurs as a very scarce migrant in Scandinavia, and is only a vagrant in the Low Countries, Britain and Ireland. It is a very scarce visitor to Madagascar, and has occurred as a vagrant in the Seychelles. Eastern populations winter south to southern India and Sri Lanka, South-east Asia, the Greater and Lesser Sundas and Australia.

Movements

The Marsh Sandpiper is a long-distance migrant, migrating overland on a broad front and apparently over-flying large areas between staging areas, as it is generally rather scarce at passage sites. The main passage between the Russian breeding areas and the winter quarters in Eastern and Southern Africa is believed to occur through the Black Sea, Kazakhstan, the Aral Sea, the Caspian region and the Middle East. There are major staging areas in Sivash Gulf, Sea of Azov, in Ukraine, where up to 5,000 have been recorded on passage (van Winden *et al.* 2001), and in the wetlands of the Uromiyeh Basin in north-western Iran, where several sites hold over 500 birds during the peak of the autumn migration (Scott 1995).

The East African Rift Valley lakes are especially important, both as a staging area and as a wintering area. A bird ringed in April at Lake Nakuru in Kenya, probably on its northward migration, was recovered in January in South Africa three years later (Underhill 1997). Another bird ringed at Lake Nakuru on passage was recovered during the breeding season in the Tyumen region of Russia (60°E), while a bird ringed in south-eastern Democratic Republic of Congo in December was found in northern Kazakhstan in late April (Cramp & Simmons 1983). A bird ringed as an adult in Ethiopia was subsequently recovered in south-western Siberia (Veen *et al.* 2005).

Much smaller numbers of Marsh Sandpipers pass through Eastern and Central Europe and the eastern Mediterranean. The species is regular on migration in Slovakia, Hungary, the Balkans, Italy, Turkey, Cyprus, Israel (where concentrations of up to 500 have been recorded) and Egypt, and occurs sparingly but regularly in eastern and southern France, southern Spain and Tunisia. However, it is uncommon in North-west Africa (Morocco and Algeria), and occurs only as a vagrant on the Atlantic seaboard of Western Europe. Thus the wintering areas in West Africa are far to the west of the breeding range and westernmost passage localities in Europe and North Africa, suggesting a north-east to south-west crossing of the Sahara from the eastern Mediterranean to tropical West Africa.

Departure from the breeding grounds begins in late June or early July, the birds departing in groups of 10-15, and most

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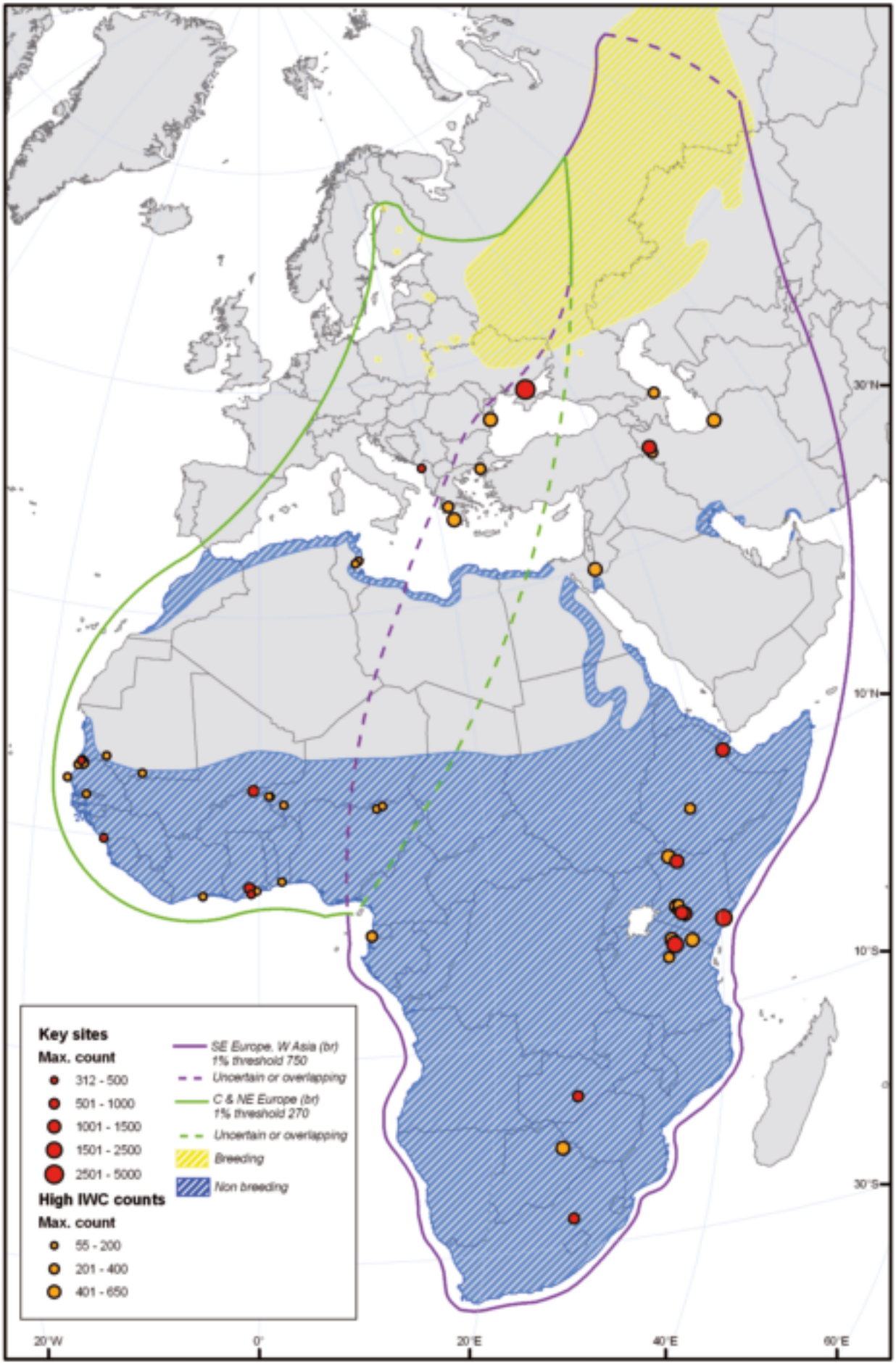

birds have left by the beginning of September (Dement'ev & Gladkov 1951, Snow & Perrins 1998). Autumn passage in the south Caspian region and Iran extends from early July to the end of October, and peaks in late July and August. The main passage through Eastern Europe occurs in August and the first half of September, while passage through Egypt extends from early August to November (Cramp & Simmons 1983, Goodman & Meininger 1989). Most adults arrive on the winter quarters in tropical Africa in September. Young birds reach the equator by the end of August, but the main influx is in September and October (Urban *et al.* 1986). Departure from Southern Africa begins in February and March, and continues until the end of April. Spring passage in Egypt extends from mid-March to early May (Goodman & Meininger 1989), and in Iran from early March to mid-May, peaking in the second half of April. In Russia, the main spring passage takes place from early April to early May, and the birds arrive on their breeding grounds from mid-April to mid-May. Small numbers of non-breeders spend the northern summer at favoured localities in Southern Africa (Underhill 1997), while rather more spend the northern summer in Eastern Africa. Others summer at staging areas on the migration route (e.g. at wetlands in the Uromiyeh basin in north-western Iran), while a few non-breeders return to the breeding areas where they remain in small in flocks (Snow & Perrins 1998).

Population limits

Perennou *et al.* (1994) concluded that there were no discrete populations of Marsh Sandpiper in Eurasia, and therefore divided the species into "populations" on the basis of major wintering groups. One of these "populations" related to those birds wintering in South-west Asia and Eastern and Southern Africa which were believed to originate mainly from breeding areas east of the Urals. *WPE1* and *WPE2* adopted this treatment, and added a western "population" for those birds wintering in West Africa and believed to originate from breeding areas in Eastern Europe. These "default" populations were retained in the first edition of the AEWA Conservation Status Report (Wetlands International 2000). It seems very unlikely that there is any clear separation between these two "populations", either on their breeding grounds or on their winter quarters. However, Stroud *et al.* (2004) concluded that separation of the relatively small number of birds breeding in Central Europe and central-west European Russia from the much larger population breeding in southern and eastern European Russia (Caspian drainage) and Western Asia was justified on conservation grounds, and this was the treatment adopted in *WPE3* and *WPE4.*

Thus, two populations are recognised in Western Eurasia and Africa:

1) birds breeding in Central Europe and western European Russia, and migrating through the Black Sea and Mediterranean region to winter mainly in West Africa;
2) birds breeding in southern and eastern European Russia and Western Asia, and wintering mainly in South-west Asia and Eastern and Southern Africa.

Population size

1. Central & North-east Europe (breeding)

Population estimate	1% threshold	Population trend
14,000-40,000	270	Possibly decreasing

WPE1 and *WPE2* gave "C/D" as the estimate for this population, i.e. in the range 25,000-1,000,000, based on a rough estimate of 10,000-100,000 breeding pairs in European Russia derived from BirdLife International's European Birds Database in 1994, while *WPE3* gave an estimate of 21,000-52,000 based on a European breeding population of 6,900-17,300 pairs (Thorup 2006). The total breeding population in Europe outside Russia has been estimated at only 76-178 pairs (data from Thorup 2006) or 123-260 pairs (data from BirdLife International 2004a). These figures include 40-70 pairs in Belarus (Tomkovich & Lebedeva 1998) and up to 30 pairs in Latvia (Baumanis 1989). The population breeding in European Russia is estimated at 13,389-30,345 pairs (data from Thorup 2006), giving a total European breeding population of about 13,500-30,500 pairs (equating to about 40,000-90,000 individuals). However, in their assessment of this population, Stroud *et al.* (2004) included only those birds breeding in the north-east and central-west parts of European Russia, i.e. only some 4,665-13,085 pairs, and assigned the birds breeding in central-east, south and south-east European Russia (about 8,700-17,300 pairs) to the eastern population that is thought to winter mainly in South-west Asia, and Eastern and Southern Africa. Thus, these authors gave an estimate of only 14,000-40,000 individuals for their "Europe/West Africa" population. This was the estimate adopted in *WPE4*.

Only a few hundred birds winter in the eastern Mediterranean, mostly in Egypt, where Goodman & Meininger (1989) estimated the wintering population at 200-400, while the numbers wintering in the western Mediterranean are tiny. An estimate of the West African wintering population based on midwinter counts in the 1990s gave only 800 (Stroud *et al.* 2004), but recent midwinter counts have indicated that the total population must be substantially higher than this. Totals of 1,746, 1,220 and 1,004 were recorded in the winters of 1999, 2000 and 2001, respectively; these included 1,251 in Ghana in January 1999 and 424 in Mauritania in January 2001 (Dodman & Diagana 2003). Altenburg & van der Kamp (1986) estimated a wintering population of 2,500-5,000 in the rice fields of Guinea-Bissau, while Ntiamoa-Baidu & Grieve (1987) gave an estimate of 530 for the number wintering along the coast of Ghana alone. It is clear that the bulk of this wintering population, scattered at inland wetlands over a very wide region, is being overlooked

2. South-east Europe & Western Asia (breeding)

Population estimate	1% threshold	Population trend
50,000-100,000	750	Possibly decreasing

Perennou *et al.* (1994) concluded that the size of this population was in the range 25,000-100,000 birds, and this range was given in *WPE1* and *WPE2*. Although the species is apparently rather scarce over much of its breeding range, it was said to be abundant in eastern Kazakhstan (Dement'ev & Gladkov 1951), while Thorup (2006) gives breeding estimates of 1,254-6,260 pairs in central-east European Russia and 7,470-11,000 pairs in south and south-east European Russia. These birds alone would account for some 26,000-51,000 individuals outside the breeding season.

An estimate of the total wintering population in South-west Asia and Eastern and Southern Africa, based on midwinter counts in the 1990s, gave only 19,000 (Stroud *et al.* 2004), but it is clear that the great majority of birds at inland sites are being missed by co-ordinated counts. Counts in South-west Asia suggest that at most only a few thousand birds winter in this region, the majority being in southern Iran and probably also southern Iraq. It was estimated that 500-1,000 wintered in Iran in the 1970s, mostly in the extreme south-west (Summers *et al.* 1987), and up to 211 were recorded in Iraq during partial midwinter surveys in the 1960s and 1970s (Scott & Carp 1982). In Africa, Summers *et al.* (1987) estimated the wintering population

in Kenya at 7,100 and that in Sudan at 5,000-10,000, while almost 4,700 were counted in Tanzania during the census in January 1995 (Dodman & Taylor 1995). Summers *et al.* (1987) estimated that about 1,000 birds spend the northern winter in coastal areas of Southern Africa, but the number of birds occurring at wetlands in the interior is now thought to be much higher (Underhill 1997). Recent AfWC counts in Southern Africa have produced totals of 1,868 in 1999, 1,441 in 2000 and 2,265 in 2001 (Dodman & Diagana 2003). Given the limited coverage of the counts at inland wetlands in sub-Saharan Africa, it seems likely that the total population is at the upper end of the range 25,000-100,000, if not higher. Accordingly, Dodman (2002) proposed a new estimate of 50,000-100,000, and this was adopted by Stroud *et al.* (2004) and *WPE3*, and retained in *WPE4*.

Conservation status

Stroud *et al.* (2004) and *WPE3* gave no indication of trends in either population, but it now seems that both populations may be experiencing some declines. There has been some expansion of the breeding range to the north and west in Europe in recent years (e.g. in Belarus, Finland and Poland), but breeding west of 30ºE remains irregular, with numbers fluctuating between years (Morozov 1997). The small breeding population in Belarus seems to be increasing (Tomkovich & Lebedeva 1998), as does the tiny population in Poland (BirdLife International 2004a). Since the 1960s, there has also been some northward expansion of the breeding range in Russia (e.g. in the St. Petersburg area), encouraged by widespread treeless farming, especially extensive grazing measures (Snow & Perrins1998). However, there have been recent reports of some decline in breeding populations in the Caspian and Aral Sea regions, and the species may have disappeared as a breeding bird in Moldova as a result of a loss of steppe habitat due to agricultural intensification (del Hoyo *et al.* 1996). A decline has also been reported in the Saratov region of European Russia (Piskunov & Belyachenko 1999). BirdLife International (2004a) reported declines in the large population in European Russia and small population in Ukraine, and concluded that the European population as a whole is undergoing a moderate decline.

Habitat and ecology

The Marsh Sandpiper is a relatively southern and steppe-adapted species, occurring during the breeding season (from April to September) at wetlands in the steppe, forest-steppe and southern boreal zones. It prefers open freshwater marshland with lush grassy vegetation, especially the grassy shores of predominantly freshwater pools in warm steppe areas. It often occurs in spring-fed marshes on the shores of salt lakes, and will tolerate brackish marshes where the water is quite shallow and where there are patches of low and scanty vegetation. It nests solitarily, or in loose colonies. Territories are poorly defined, and there are records of nests being placed only 5-10 metres apart (Johnsgard 1981). Breeding densities in prime habitat may reach 5.5 pairs/ha (Morozov 1990) and, exceptionally, as many as several dozen pairs may nest on a marsh of only 1-2 ha in area (Dement'ev & Gladkov 1951). The species is monogamous, both sexes sharing in incubation and tending the brood. Egg-laying takes place in late April to June, and fledging may begin as early as late June. The birds begin to assemble in small flocks of 10-15 birds (occasionally up to 50) in mid-July, prior to the autumn migration (Dement'ev & Gladkov 1951). Outside the breeding season, the Marsh Sandpiper typically frequents the marshy borders of inland lakes or pools, flooded areas of cultivated land, sewage farms, fish ponds and paddy fields. It also occurs at salt works, coastal lagoons and sheltered tidal estuaries, but is scarce on open mudflats and beaches. It usually forages in shallow water, often in tightly co-ordinated groups (Hayman *et al.* 1986). The food includes small crustaceans, gastropods and other small molluscs, as well as a variety of aquatic insects (Johnsgard 1981). Marsh Sandpipers are generally gregarious outside the breeding season, occurring in small parties of up to 15 or 20 birds, although they sometimes form mono-specific flocks of over 300 birds (Urban *et al.* 1986). They often forage in mixed groups with Common Greenshanks *Tringa nebularia* while on migration.

The complete post-nuptial moult commences in early or mid-July in or near the breeding areas, and is usually suspended during migration and completed in the winter quarters. However, there is great variation in the stage of moult at which suspension occurs, and some late migrants may complete the moult before migration starts (Cramp & Simmons 1983). Many birds complete their moult in Eastern Africa. A partial pre-nuptial moult begins in mid-December to late February, and is completed in early February to early April (Cramp & Simmons 1983).

Network of key sites

The Marsh Sandpiper migrates on a broad front in small groups, and rarely occurs in large concentrations. However, several key sites have been identified. The most important staging area discovered to date is the Sivash Gulf in the Sea of Azov, Ukraine, where up to 5,000 have been recorded in autumn (van Winden *et al.* 2001). This site is probably used by birds from both western and eastern populations. Lake Uromiyeh in north-western Iran is a key staging area for the eastern population, while several other wetlands in the Uromiyeh basin, such as Shur Gol, Yadegarlu and Dorgeh Sangi, would doubtless qualify as key sites if turnover could be taken into account. Other important staging areas in South-west Asia include Miankaleh Peninsula/Gorgan Bay in the south-east Caspian region of Iran and the southern Arava Valley is Israel, both of which have held as many as 500 Marsh Sandpipers at one time. It is likely that there are a number of important passage sites in southern Russia and Kazakhstan, and possibly also in North-east Africa, but these have yet to be documented.

Five key wintering sites have been identified in West Africa: Djoudj National Park in Senegal, Vasières de Sonfonia in Guinea, Mare d'Oursi in Burkina Faso, and the Keta Lagoon complex and Muni Lagoon in Ghana. In Eastern and Southern Africa, key sites include the Sac Allol region in Djibouti, four sites in Kenya, Lake Manyara in Tanzania, Kafue Flats in Zambia, and Koppies Dam in South Africa. Most of these sites hold only 1-2% of the population, but there have been high counts of 1,690 in the Tana River delta in Kenya and 2,440 at Lake Manyara in Tanzania. There are doubtless additional key wintering sites in Eastern and Southern Africa, but in general the species tends to be widely dispersed in small numbers throughout most of its wide range in Africa, and this is not a species for which the key sites approach to conservation is especially appropriate.

Protection status of key sites

Sivash Gulf (245,000 ha) is covered by two Ramsar sites, but has no formal protection. Lake Uromiyeh (465,000 ha) in Iran was designated as a National Park in the early 1970s, a Ramsar site in 1975 and a Biosphere Reserve in 1976. The wetlands of Shur Gol, Yadegarlu and Dorgeh Sangi in the Uromiyeh basin in Iran were designated as a Ramsar site in 1975, but are otherwise unprotected, while Miankaleh

Peninsula and Gorgan Bay are well protected in a Wildlife Refuge and Biosphere Reserve (68,800 ha) and Ramsar site (100,000 ha). Several of the key wintering sites in Africa are well protected, including Djoudj National Park in Senegal, parts of Lake Turkana in Kenya, Lake Manyara National Park in Tanzania, and Kafue Flats in Zambia.

Table 49. Key sites for Marsh Sandpiper. Sites where 1% or more of a population has been recorded

Country	Site	Lat.	Long.	Season	Max total	Year max	Average total	Basis for average	Source	Population(s) at site
Burkina Faso	Mare d'Oursi	14.67	-0.50	Pre-breeding migration	789	1998			AfWC database	C & NE Europe
Djibouti	Sac Allol Region	11.50	42.50	Non-breeding	1300	1999			AfWC database	SE Europe & W Asia
Ghana	Keta Lagoon complex	5.92	-0.83	July-August	935	1999	334	1996-01 (4)	AfWC database	C & NE Europe
Ghana	Muni Lagoon	5.37	-0.67	July-August	333	2000			AfWC database	C & NE Europe
Guinea	Sonfonia (Konkoure)	9.77	-13.68	Non-breeding	312	1998			AfWC database	C & NE Europe
Iran	Lake Uromiyeh	37.50	45.50	August	1395	1973			Evans, 1994	SE Europe & W Asia
Kenya	Dandora Oxidation Ponds	-1.25	36.92	Non-breeding	1110	2000	234	1996-00 (5)	AfWC database	SE Europe & W Asia
Kenya	Lake Turkana	03.45	36.67	January	1100	-			Urban *et al.* 1986	SE Europe & W Asia
Kenya	Manguo Floodplain	-1.10	36.65	Non-breeding	1110	2000	280	1994-00 (4)	AfWC database	SE Europe & W Asia
Kenya	Tana River Delta	-2.50	40.33	Non-breeding	1690	1993			WBDB	SE Europe & W Asia
Montenegro	Ulcinj Salina	41.92	19.30	November	500	2005			M Schneider-Jacoby *in litt*	C & NE Europe
Senegal	Parc National des Oiseaux de Djoudj	16.42	-16.25	Non-breeding	438	1995	102	1995-00 (5)	AfWC database	C & NE Europe
South Africa	Koppies Dam	-27.25	27.68	Non-breeding	850	1992	438	1992-01 (2)	AfWC database	SE Europe & W Asia
Tanzania	Lake Manyara National Park	-3.67	35.83	Non-breeding	2441	1995			WBDB	SE Europe & W Asia
Ukraine	The Sivash, Azov Sea	46.17	34.58	August	5000	1998		2001	Chernichko *et al.*	SE Europe W Asia+ C & NE Europe
Zambia	Kafue Flats	-15.67	27.17	Non-breeding	970	2001	336	1998-01 (3)	AfWC database	SE Europe & W Asia

Derek Scott