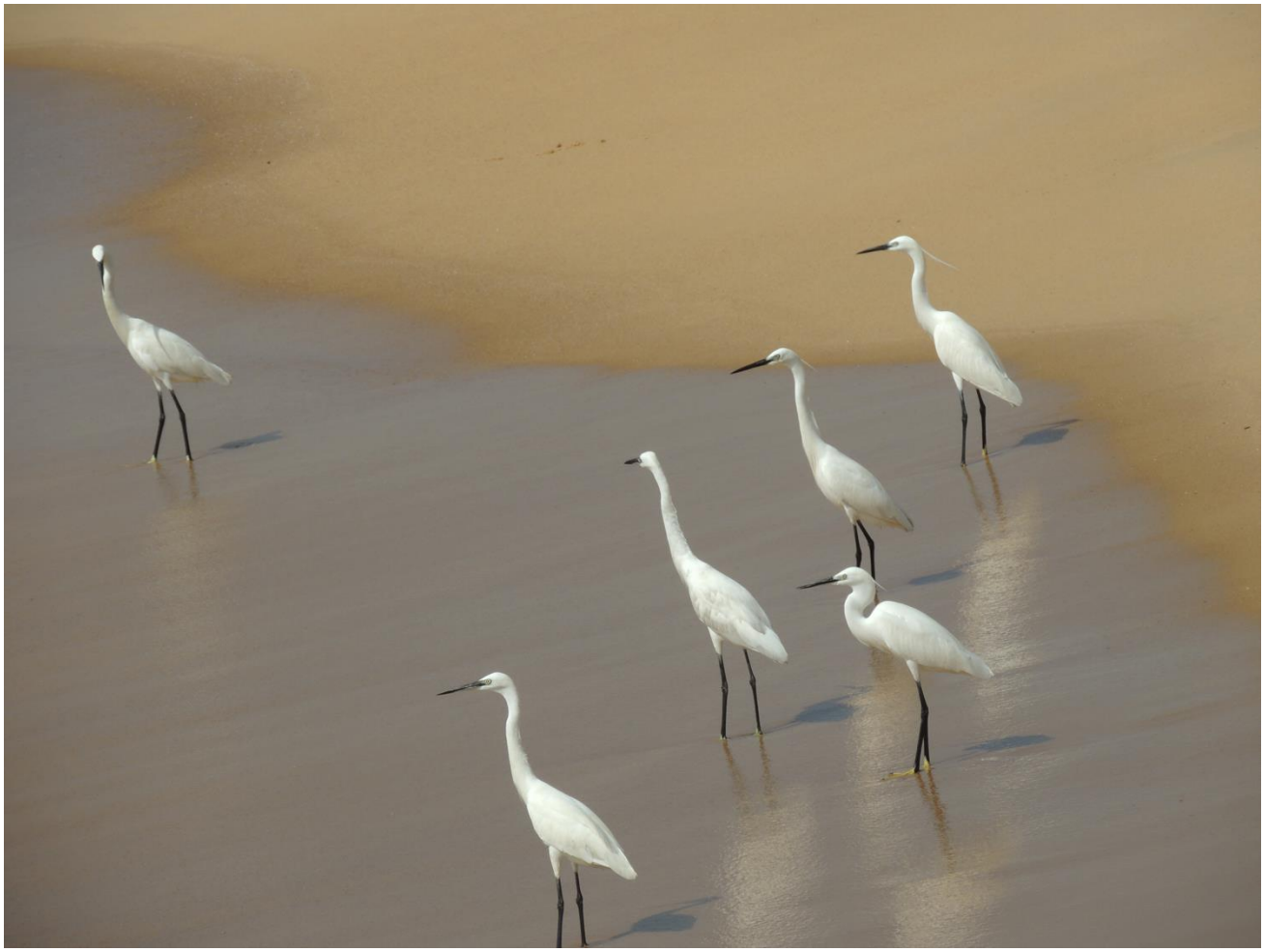
Status, Estimates and Trends of Waterbird Populations in Africa: AEWA-listed African populations[1]

CONSULTATION DRAFT



Report to Wetlands International

For: Sixth Review of the Conservation Status of Waterbird Populations covered by the African-Eurasian Migratory Waterbird Agreement (AEWA CSR6)

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[1] This report forms an extract of 'Status, Estimates and Trends of Waterbird Populations in Africa 2014', which will be available on the Wetlands International website in 2014/2015.

Summary

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Introduction

This document

This document comprises an updated table of population estimates and trends of African waterbird populations in the format of an Excel worksheet, supported by the explanatory text below. This overview focuses on those populations covered by the African-Eurasian Migratory Waterbird Agreement (AEWA) that are restricted, or largely restricted to Africa and its associated islands. Species are treated in systematic order, in line with Rose & Scott (1997), which is also the baseline for the order of populations. The term 'waterbird' includes all taxonomic bird families, the majority of whose members depend upon wetlands during at least part of their life cycle, as described by Rose & Scott (1994). Also in line with this publication, a population is a 'distinct assemblage of individuals which does not experience significant emigration or immigration'.

Whilst there has been reasonable progress over recent decades, there is still a general lack in reliable quantitative information at the population level of many African waterbird populations. Where possible, data accumulated under the International Waterbird Census (IWC) and Important Bird Areas (IBA) in Africa programmes is used, but in all cases it has been necessary to refer to relevant literature, notably the books on ornithology, wetlands and nature in Africa and accessible scientific papers. Much information was also derived from a multitude of sources, old and new, contacts and unpublished correspondence, especially in preparation of precursors to this document (Dodman 2002 & 2006). Population estimates and trends have been made following the guidelines below, adapted slightly from Wetlands International guidelines (ref?).

Square brackets are used to indicate texts that have not been updated since Dodman (2006) or to highlight where text needs further editing or updating.

Population Estimates

All estimates refer to the total number of individuals in the population, including immature birds, and are the most recent estimates available. In most cases, the estimates given in the tables are taken directly from the source references. However, all estimates have been rounded to a maximum of three significant figures, and rough estimates, particularly those given as a broad range, have been rounded to two significant figures.

Population estimates derived from censuses are generally made towards the end of the non-breeding season or from estimations of breeding pairs. Waterbird populations tend to be at their lowest and most stable at these times. Individual numbers usually peak after the breeding season due to first year recruitment and suffer high and variable mortality over the non-breeding season making these times unsuitable for population estimation. To allow for the element of immature or non-breeding birds in each population, estimates given by original sources in the form of number of breeding pairs (or males or females if only these were counted) have been multiplied by three to give the total population size, as suggested by Meininger *et al.* (1995). Estimates given in the form of breeding adults or mature individuals (i.e. twice the number of breeding pairs) have been multiplied by a factor of 1.5. There is no intentional overlap between the populations of a species.

<u>Start & End Year</u>
Population size estimates have been allocated a start and end year that determines the period when the estimate was made. The methods/means by which the estimate is calculated may vary, so the following conventions have been used:

For populations derived largely from census information:

- The same start and end year is given if the whole population has been censused in the same year.
- The start and end year are different if the population has been censused or estimated in different years during a longer period. The start year will be the year in which the first part of the population was censused or estimated and the end year will be year in which the last part of the population was censused or estimated.

For populations derived largely from publications:

- If the estimate comes from one publication but it is not clear when the estimate was made, the year of the publication is used, with 1 year subtracted for both start and end year. This also refers to estimates made based on largely qualitative information presented in the text below.
- If the estimate comes from a number of publications or from a review of publications but it is not clear when the estimate was made, the year of the earliest publication less 1 year is used as the start year and the year of the last publication less 1 year is used as the end year.

Minimum & Maximum

Wherever possible (justifiable according to estimates or information presented in the text), populations are given a number to represent a minimum and maximum estimate. For some populations the same value has been entered for minimum and maximum, either when the estimate quality is accurate down to the individual bird or if it has been made based on a single-figure estimate presented in the main reference upon which it is based. A minimum and maximum of -1 indicates that the size of the population is unknown.

Estimate Quality

From CSR5 and WPE5 onwards, four categories of quality assessments are used:

1. No estimate: No population estimate is available;
2. Best guess: Population estimate is only possible with large or uncertain ranges;
3. Expert opinion: Population estimate is based on incomplete survey and monitoring data and the population size has been developed employing some expert opinion for extrapolating from this data with more accuracy than a best guess;
4. Census based: Population estimate is based on almost complete census or statistically adequate sampling.

References for population estimates

In cases where numerous sources have been used to establish the estimate, all sources are given in the text below, along with an explanation, whilst key references only are provided in the table.

Notes

More information concerning how the population size estimate has been derived from the available sources is provided here if necessary.

Population Trends

The following trend codes are used in the online application:

DEC:	Declining
INC:	Increasing
STA:	Stable
FLU:	Fluctuating
EXT:	Extinct
Unknown:	Unknown

In cases where the trend is less certain a "?" may be appended, or two trend types separated by a "/" e.g. DEC/STA. However this has been avoided as much as possible.

Start & End Year

All population trends require a start and end year that determines the period for which the trend applies. For the CSR reports, the trend period is shortened to a maximum of 10 years. In some arid and semi-arid regions (e.g. parts of Australia), where waterbird numbers are affected by cycles of draught and flood, longer periods were used to remove the impacts of short- or medium term fluctuations.

Trend Quality

From CSR5 and WPE5 onwards, four categories of trend qualities were used following the method developed by the International Wader Study Group:

1. No idea: No monitoring at international scale in either breeding or non-breeding periods. Trends unknown. This category also includes populations where trends are statistically uncertain unless other evidence allows estimation of the trend.

2. Poor: Some international monitoring in either breeding or non-breeding periods although inadequate in quality or scope. Trends assumed through partial information.
3. Reasonable: International monitoring in either breeding or non-breeding periods that is adequate in quality or scope to track direction of population changes.
4. Good: International monitoring in either breeding or non-breeding periods that is adequate in quality or scope to track direction of population changes with defined statistical precision.

References for population trends

In cases where numerous sources have been used to calculate the trend, all sources are given in the text below, with key references only provided in the table, with an explanation provided in the Notes.

Notes

More information concerning the trend estimates is provided here as necessary.

Species and population accounts by family

1. Grebes

***Podiceps cristatus* Great Crested Grebe**

Population *infuscatus*, Eastern Africa
This population is found principally in Rift Valley lakes, extending from Eritrea to northern Zambia. Britton (1980) considered it to be resident and locally common at 1500-3000m on freshwater and alkaline lakes in west and central Kenya and northern Tanzania. Dodman & Rose (1997) present an overview of AfWC data from 1991-1996, when maximum counts were 24 in Kenya (1991) and 18 in Ethiopia (1995). Subsequently, there were counts in Ethiopia of 39 in 1997 (Dodman *et al.* 1997), 101 in 1998 (Dodman *et al.* 1999) and 141 in January 1999, as well as 27 in Kenya (Dodman & Diagana 2001). This probably reflects more comprehensive coverage of lakes in Ethiopia during the AfWC in the late 1990s. Elsewhere, continued declines were noted. The count of 4 in Uganda in 1998 appears to have been the most recent, and Pomeroy (pers. comm.) reported in 2000 that none had been found since in Uganda despite extensive surveys in most suitable locations.

Overall, Ethiopia appears to be the only country where this population survives in reasonable numbers. As there are a good number of lakes not included in the AfWC, the counts of >100 in 1998 and 1999 could potentially indicate a population here of up to several hundred. However, it is important to clarify whether January AfWC might include non-breeding *cristatus* from the Palearctic. Ash & Atkins (2009) consider the Great Crested Grebe to be a fairly common breeding resident in Ethiopia and Eritrea, present on larger lakes throughout the year, though most dated records are from the December to February period, thus perhaps indicating the presence of migrants. They also consider that numbers present in the late 2000s are lower than in the past, whilst this grebe was first noted in Eritrea in 2002.

Lewis & Pomeroy (1989) and Bennun (1993) attributed declines in Kenya to extensive use of gill nets, especially at Lake Naivasha, though Cunningham-van Someren (1994) suggested that not all wetlands necessarily suffered from over-fishing with gill nets, listing eight groups of sites that should be checked before concluding this bird was in decline in Kenya. Nevertheless, there are no breeding records between 1979-92, with a total population in the country of less than 50 by 1995, as summarised by Zimmerman *et al.* (1996). In Uganda, this grebe occurs only in crater lakes in the western highlands of Toro, Ankole and Kigezi, where in past decades it was apparently resident and present in fair numbers (Carswell et al. 2005). However, in recent decades counts the bird has only been recorded irregularly, and then in single figures. Prone to drowning through capture in fishing nets this species is considered critically endangered in Uganda (Carswell et al. 2005).

In Tanzania, Baker (1997) estimated <50 birds, it being only known from a few small lakes (some just large ponds) in the Crater Highlands around Mbulu, and 10 is the largest ever concentration during the non-breeding season (N. Baker, *in litt.*). More recently, Baker & Baker (2014) consider that this is now a very rare bird in Tanzania with a population of less than 10- 20 individuals; there are only a few known and potential breeding sites on the Mbulu Plateau and all are unprotected and under serious threat from agriculture, livestock and overfishing with gill nets. In Zambia, there appear to have been declines at the few known sites, all in the north of the country. In the past, up to 42 birds have been recorded at Lake Chila in the far north of Zambia, and the last reported presence at the Uningi Pans is from 1994; the species may no longer breed in Zambia (Dowsett et al. 2008). Baker & Baker (2014) indicate that there have been no records in recent years from the Ufipa Plateau in the southern Tanzania highlands, and the species here and in adjacent northern Zambia is likely to have been extirpated.

The population estimate should remain at <1,000, but this population needs careful monitoring, and could well be in the low hundreds, whilst the trend is in decline, with a probable extirpation across much of the southern part of its former range.

IWC: January counts in 2000s have revealed some higher counts than in the past from Ethiopia and Eritrea, especially in 2007 and 2008, when there were regional totals of 436 and 598 respectively, with 382 at Ashenge Lake in 2007 and 442 in 2008, when there were a further 151 at Chitu Lake. The highest count from Eritrea was 167 in 2003, including 120 at Mai Nefi. However, records are very few in July (although coverage

is also low), and some of these birds may be from the Palearctic. Due to this uncertainty, a new estimate is proposed of 500 – 1,500, especially noting its status as a breeding resident in Ethiopia and Eritrea.

Population *infuscatus*, Southern Africa
This population occurs in Southern Africa, where it is mainly distributed in the Transvaal and in the Western Cape Province of South Africa, with scattered records elsewhere, including Namibia (Dean 1997). Hockey *et al.* (2005) consider it to be locally common but generally sparse in Southern Africa, mostly on inland lakes, pans and dams, though it usually disappears from high-use recreational waters. It is an uncommon local resident in extreme southwest Angola (Pinto 1983, Dean 2000). Dodman & Rose (1997) and Dean (1997) indicate a range expansion in the 1980s and 1990s, due primarily to the availability of artificial dams. The first record from Botswana was reported by Beesly & Irving (1976), with two birds at Mogobane Dam in January 1974. Since then, this species has become more regular in Botswana, and records from between 1991 and 2000 show a maximum of 21 recorded in January counts in 1994, whilst July counts were much higher, with a maximum of 142 in 1993 (Tyler 2001); breeding has been recorded from several sites. During the period 2001-2010, the dry season (July) counts seem to be higher in southeast Botswana, e.g. 225 at Bokaa Dam in 2010; there is clearly some dry season movement into southeast Botswana, presumably from South Africa (Tyler 2011). There were 230 in Francistown Sewerage Ponds in February 2002. The range extends into western Zambia where it is recorded from lakes either side of the Zambezi between Lakes Makapaela and Silita, although no more than eight birds have been reported from any one lake there (Dowsett *et al.* 2008).

IWC data reveals a number of counts from the region with totals over 1,000: January counts include 1,206 in 2009, 1,219 in 2006 and 1,030 in 2005, the majority in South Africa, including site maxima of 832 in the Wilderness Lakes (Touw System) in 2009. July counts include 1,164 in 2001 and 1,103 in 2002, with South Africa again supporting the majority, especially Barberspan with 361 in 2001 and 195 in 2002. This suggests a minimum of 1,500 birds. As coverage at favoured sites was probably good, a maximum of 5,000 is proposed.

Rose & Scott (1994) proposed a population estimate of 'A' (<10,000), which has not been improved on in subsequent WPE publications. The trend is given as 'increasing' based on range expansion, particularly into Botswana, where numbers also seem to be rising, especially during the dry season.

***Podiceps nigricollis*, Black-necked Grebe**

Population *gurneyi*, Southern Africa
This grebe is largely nomadic on Southern Africa, with irregular concentrations recorded especially off the western coasts of South Africa and Namibia and in pans of South Africa's central Highveld. Breeding is largely erratic and rains-dependent. In South Africa, summer concentrations of over 1000 birds have been recorded (Taylor *et al.* 1999). The count of 6,224 birds from four sites in Namibia in July 1994 was perhaps the highest of the 1990s (Dodman & Rose 1997). Dean & Underhill (1997) suggested a population of around 10,000, based on counts from 1976-1981. Scott (1999) suggested that the population was increasing in the 1990s. Certainly this bird is much more regularly recorded in the sub-region now than in the 1970s, when Beesley & Irving (1976) described it as a vagrant to Botswana.

Between 1991 and 2000 there were regular records in southeast Botswana during the AfWC, with maxima of 39 recorded in the wet season of 2000 and 32 in the dry seasons of 1991 and 1995 (Tyler 2001). However, subsequent counts in Botswana tend to show more erratic occurrence, e.g. 45 in January 2006, yet an average of only one bird for the other nine years in the 2001-2010 period; similarly 38 in May 2010 at Sojwe Pan in the north, but none the next month (Tyler 2011). However, at the end of January 2000, >200 adults and >50 nests were recorded in Makgadikgadi System (Tyler 2001). There are also breeding records from scattered localities in Namibia. This bird would appear to breed opportunistically when conditions are favourable, probably making use of ephemeral wetlands.

Considering that most sites for this species were probably well covered by counts in the non-breeding period, Dodman (2002) proposed a population estimate of 10,000 – 20,000 birds, based on Dean & Underhill (1997) and D. Harebottle (pers. comm.), with an increasing trend since the 1990s. This trend seems to have continued into the 2000s, and in July 2008 a record count of 30,424 birds was achieved from Botswana, Namibia and South Africa, largely attributable to a count of 23,853 birds at Walvis Bay Ramsar Site (IWC data). This high count was most likely a direct result of exceptional rains during the wet season 2007/08, when, most likely creating widespread breeding opportunities. No counts since have been so high, and were even at a regionally low 3,602 in July 2011. Quite possibly the population has stabilised into a fluctuating pattern, which would be unsurprising for an opportunistic seasonal breeder. However, it would seem sensible to take note of earlier increases and analyses of IWC data to ascribe a new population estimate of 15,000 – 30,000 birds.

2. Pelicans

***Pelecanus onocrotalus*, Great White Pelican**

Population *onocrotalus*, Western Africa
This population occurs in coastal West Africa centred on Mauritania and Senegal, extending down to Sierra Leone and in the Sahel belt from Mali to Chad, with birds also recorded on the coast between Ghana and Nigeria. The population estimate of 30,000 in Rose & Scott (1997) was based on Perennou (1991). The most important breeding colonies are in Senegal at Djoudj, where there were some 8,500 breeding pairs in 1982 and at Kalissaye, where 6,000 pairs have been recorded (Coulthard 2001). Numbers in the Senegal Delta, from Aftout-es-Saheli in Mauritania to Djoudj in Senegal have fluctuated somewhat during the 1990s and 2000s, though numbers seem to average out at around 20,000 birds; Schrike *et al.* (2004) considered there were 22,000 birds in the Djoudj/Diawling area in January 2001, whilst Shricke & Triplet (*in litt*.) estimated there to be some 20,000 birds in the delta in 2004/05. Nearly 38,000 birds were recorded in Senegal and Mauritania in January 2000, mostly in the Senegal Delta and environs (Dodman & Diagana 2002).

There are also important breeding colonies at the Banc d'Arguin in Mauritania, where there were 3,080 pairs in the 1980s (PNBA 1988, Campredon 2000) and 3,800 pairs in 1997 (Isenmann *et al.* 2010), although Hagemeijer *et al.* (2004) only counted 3,185 birds in January 2000, with the largest breeding group being of 1,650 birds. Barnett *et al.* (2001) recorded up to 715 on Bijol Island, The Gambia. 250 were counted in Guinea in January 2000 (AfWC data) and 253 were counted at Yawri Bay, Sierra Leone in January-February 2005 (WIWO/CSSL 2005).

Further east, Great White Pelican occurs on the Cameroon coast, where 159 birds were counted in the Ndian Basin in January 2007, giving an estimate for the coast of 200-300 birds (Van der Waarde 2007). Inland, 105 were counted in the Waza-Logone area of northern Cameroon in February 2000, whilst none were found in the Logone Floodplain across the border in Chad (Ganzevles & Bredenbeek 2005).

During coordinated counts along the coast of Western Africa in January 2014, 33,371 birds were counted between Mauritania and Cameroon, the great majority in the Senegal Delta, with over 32,000 in Senegal and Mauritania, including 4,818 birds estimated for Mauritania'a Banc d'Arguin. Great White Pelicans were also counted in Gabon, Angola and Namibia, but it is not clear if birds in (northern) Angola and Gabon belong to the West or Southern Africa population. The wider Senegal Delta is clearly the most important region for this population, and past IWC data clearly support this, although count totals fluctuate somewhat.

This species is recorded widely from the Sahelian belt in the AfWC from Mali to Cameroon/Chad, but not in such high numbers as in Senegal and Mauritania. There was a breeding colony of up to 1,000 pairs at Wase Rock on the Benue River in Nigeria, but this was greatly reduced in number by the 1990s (Elgood *et al.* 1994). During monthly counts at Lac Debo in Mali's Inner Niger Delta in 1999, the maximum count was 1,200 in April (Kamp & Diallo 1999), much lower than earlier counts of 11,000-12,000 (Lamarche 1980). There is uncertainty as to the extent of the range of this population, which is assumed to embrace coastal and inland Western Africa from Mauritania / Senegal to Chad / Cameroon. However, associations with birds further east and south are not known.

A population estimate of 60,000 is proposed, based on approximately 10,000 pairs in the Senegal Delta, 4,000 pairs in the Banc d'Arguin and 6,000 pairs elsewhere. The current status of breeding in southern Senegal is uncertain, whilst there may be some unknown breeding colonies in the Sahel Belt. However, Crivelli & Schreiber (1984) suggested that colonies in Nigeria, Chad and Cameroon disappeared, possibly displaced to Senegal, where breeding was first reported in 1976. This suggests a somewhat roaming regional population dependent on a small number of potential breeding sites, but able to move widely through post-breeding dispersal. However, the movements of this species within the region are certainly not fully understood. Overall, the population probably increased significantly since the 1960s, but in the 2000s most likely remains rather stable.

[Compare to analysis from East Atlantic Flyway]

Population *onocrotalus*, Eastern Africa
The Great White Pelican is a ubiquitous bird of the Rift Valley, with often large congregations recorded at the region's major lakes. However, breeding information is very sketchy, and the presence of birds from the Palearctic during the northern winter makes it difficult to estimate the population size based on AfWC data.

Birds in Eastern Africa were considered to form a separate population to birds in Southern Africa after du Toit *et al.* (2002). However, a 'boundary' between populations has never been established.

Rose and Scott (1997) gave a population estimate for Eastern and Southern Africa of 150,000 birds, based on Crivelli & Schreiber (1984), who suggested there were 75,000 breeding pairs of Great White Pelican in Africa (all populations), the equivalent of 225,000 birds. If this estimate is still of the right order, and if there are about 60,000 birds in Western Africa and 30,000 birds in Southern Africa, then this leaves an estimate of around 140,000 birds. The Great White Pelican is recorded in highest numbes in Kenya, although numbers vary considerably, for instance 3,193 in 2007 and 107,118 in 2009 and 19,494 in 2012 (IWC data). The most important sites are Lake Nakuru and Lake Elmenteita. Count data from Tanzania and Ethiopia by contrast yield much lower numbers, and probably coverage of all potential sites is limited.

One of the most important breeding colonies in the region has been at Lake Shalla in Ethiopia, where there have been up to 10,000 pairs, from where young birds disperse widely across Ethiopia and into Kenya and South Sudan (Ash & Atkins 2009). However, this colony has suffered a recent reduction due to fish reductions in Lake Abiatta brought on by man-made damage to the lake. Other established breeding colonies have been at Lake Elmenteita in Kenya, where up to 8,000 pairs bred in the 1970s, and Lake Rukwa in Tanzania, where a huge colony of 40,000 pairs was recorded in the 1950s (Britton 1980), although this colony suffered almost complete breeding failure (Vesey-Fitzgerald 1957). There is no recent information from Lake Rukwa concerning breeding pelicans. There is a breeding colony in northern Zambia at Mweru Wantipa, where over 3,000 were present in 1954 (Leonard 2001) and over 1,500 young, when water levels in northern Zambia were remarkably low (Dowsett *et al.* 2008).

The uncertain status and vulnerability of breeding colonies and especially the supposed crash in breeding at Lake Shalla suggest that trend is in decline.

Population *onocrotalus*, Southern Africa

In Southern Africa, Williams & Borello (1997) considered there to be about 6,000 breeding pairs, of which about 3,500 bred in South Africa at two colonies. Harrison *et al.* (1997) also suggested a figure of 6,000 breeding pairs for Southern Africa (south of the Zambezi). More recently, Hockey *et al.* (2005) concluded there were 7,000 – 8,000 pairs in Southern Africa, with rather fluctuating breeding numbers at inland sites in Namibia and Botswana, and increasing numbers in South Africa mainly at Lake St. Lucia in the east (about 3,000 pairs in 2000) and in the western Cape (650 pairs in 2001).

The coastal populations tend to breed on a regular annual basis, but the breeding of inland birds tends to be subject to favourable climatic conditions, such as good rainfall (duToit *et al.* 2002). Crawford (*in litt.* 2001) reviewed past breeding records, concluding that the coastal breeding population in South Africa is about 3,800 pairs, with colonies at Lake St Lucia, KwaZulu-Natal, Dassen Island, Western Cape and Bird Rock Platform near Walvis Bay, Namibia, whilst 3,000 - 4,000 pairs may breed sporadically at inland sites. Such sites include Etosha Pan in Namibia and Sua Pan in Botswana, where Williams & Borello (1997) report of several thousand breeding birds in 1979, about 6,000 birds in 1989 and about 2,000 birds in 1996. The Western Cape sub population increased 6-7 fold over 20 years of the 1980s and 1990s, possibly due to scavenging, and could risk being poisoned and/or persecuted (duToit *et al.* 2002). Dean *et al.* (1988) reported that this species was 'abundant' at Cunene Mouth (Angola / Namibia border); 146 were counted here in 1996. It is unclear how far north this population extends, but a count of 600 at Cabinda, the northern enclave of Angola in February 2014 could be attributed to breeding birds of Namibia or from Western / Central Africa.

The proposal by du Toit *et al.* (2002) to identify Southern African birds as a discrete population, and the definition of this population, is still in need of further research. Dodman (2006) considered that it may well be that a more appropriate split would be to identify one coastal breeding population in South Africa, with inland-breeding birds having closer affinity with birds further north, for example those breeding at Zambia's Mweru Marsh. Machado (*in litt.* 2009) went on to suggest that, according to molecular studies, the Great White Pelicans of the Western Cape of South Africa appear to have been isolated from other pelicans for a long time, with no immigration from Namibia, proposing sedentary populations in the Western Cape and the Namibian coast, with nomadic inland populations that breed opportunistically according to rainfall. There thus may be at least two discrete populations in Southern Africa: a sedentary Western Cape population of around 650 pairs (approx 2000 birds) and a wider-ranging population embracing east coast and inland-breeding birds, including 3,000 pairs from St Lucia and 150 pairs from coastal Namibia.

Wetlands International (2006) used a population estimate of 30,000, based on the estimate given by duToit *et al.* (2002) of <10,000 pairs. It might have been more appropriate to give the population estimate as <30,000. A populaton range is proposed of 21,000 – 24,000 based on Hockey *et al.* (2005). IWC data does not suggest a

change in trend from 2005-2014, and is somewhat dependent on whether a breeding event is occurring at the time of the count. For instance, the highest IWC count to date is of 11,493 in July 2012, largely attributable to over 7,000 birds recorded at Lake St Lucia (IWC data). A current population trend of stable is proposed.

[Seek further info from S Africa and enquire any ringing recoveries].

***Pelecanus rufescens*, Pink-backed Pelican**

There is one population *rufescens*, which is confined largely to tropical and (to a much lesser extent) sub-tropical Africa. Although this species is widespread, especially along some tropical coastlines and through the Rift Valley, it is much less congregatory than *P. onocrotalus*. The species is rather uncommon in inland Sahelian wetlands; e.g. it is rare in Niger (Brouwer & Mullié 2001). However, it is a frequent to abundant resident in Ethiopia and Eritrea (Ash & Atkins 2009). Baker (1997) estimated a population in Tanzania of 10,000-20,000, although N. Baker (*in litt.*) later believed the population to be towards the higher end of this range.

There is a resident population in the Red Sea, from where Tiwari (in prep.) reported 120 birds at Seawater Farms, Eritrea. Semere *et al.* (2008) recorded 235 breeding pairs from nine Eritrea islands. Up to 100 have been recorded on the Red Sea coast of Yemen between Midi and Al-Luhayyah, where it probably breeds in the mangroves, whilst 150 have also been counted at the Aden Lagoons (Scott 1995).

Regional totals in the AfWC from January 1998 were: 2,780 (West Africa), 124 (Central Africa), 2,851 (Eastern Africa) and 147 (Southern Africa), giving a total of 5,902 (Dodman *et al.* 1999). Although continental coverage in the AfWC is low, these counts included a number of very suitable sites. The highest counts recorded are from Lake Nakuru in Kenya, with 10,068 in January 2004 and 19,062 in July 2008 (IWC data). The possibility of confusion during counts between juvenile Great White Pelicans and Pink-backed Pelicans cannot be ruled out. A population estimate of 50,000-100,000 is proposed, with a trend of stable, due to the widespread nature of its relatively small colonies and continuation of records from across the continent.

3. Cormorants & Darter

***Phalacrocorax carbo*, White-breasted (Great) Cormorant**

Population *lucidus*, Central & Eastern Africa
Rose & Scott (1997) give a population estimate of D for Western and Eastern Africa. It is suggested to split off the coastal population of West Africa (see below), with this population extending from the Lake Chad Basin to Eastern Africa, including all coastal and Rift Valley birds, as far south as Zambia, (i.e. including the cormorants of Lake Malawi). The status of the small population based around Lake Chad is unclear; this may warrant treatment as a separate population. The wetlands of Eastern Africa seem to form the core of this population, especially in the Rift Valley, where it is probably largely resident. Baker (1997) gives an estimate of 130,000 birds for Tanzania with 100,000 associated with Lake Victoria. However, this cormorant is conspicuous by its absence in many parts of eastern West and Central Africa, and there are virtually no records from the Gulf of Guinea. In Kenya, there is a breeding population at Masinga, where 2,150 were counted in March 1995 (Nasirwa *et al.* 1995). Typically some 5,000-10,000 are counted in the January AfWC in Eastern Africa, with a high of nearly 50,000 in 1995 accounted for by increased coverage in Tanzania that year (AfWC reports & IWC database), with most regular records from Kenya's Rift Valley lakes.

Although January and July counts from Kenya between 2004 and 2013 are significasntly higher than the previous 10-year period, there is not enough evidence to propose an increasing population trend. The population is probably stable, given its adaptability, especially to man-made developments, noting however some losses of habitat and potential vulnerability of some breeding colonies. A population estimate of 200,000-500,000 is proposed, assuming that Tanzania, Kenya and Ethiopia support the bulk of this population, and given a generally patchy distribution, which prevents broad extrapolations being made.

Population *lucidus*, coastal West Africa
This population occurs widely along the West African coast from Mauritania to Guinea, being locally common at several key sites. Mauritania's Parc National du Banc d'Arguin is an important breeding site, showing a generally increasing trend until the 1990s, e.g. 1,400 pairs in the 1960s, 4,260 pairs in 1984-85 and 8,130 pairs in 1997 (PNBA 1988, Isenmann 2006). This cormorant also breeds in the Senegal Delta, with some 750 pairs at Djoudj, 400 pairs in Diawling and 70 pairs in Bounoum in January 1995 (Dodman & Taylor 1995).

However, fluctuations here are also noteworthy, and there is one extremely high report of 15,000 pairs in Diawling in 2005 (Diagana *et al.* 2007, Isenmann *et al.* 2010), although this figure is not widely accepted. There are also some 400 nests on the Iles de la Madelaine off Dakar, Senegal. There may be some interchange between breeding colonies of the region. Overall, the trend would appear to be stable, noting fluctuations between years at breeding colonies.

January IWC counts reveal a fluctuating pattern. In January 1997, 25,362 were recorded during a thorough census of Mauritania's Banc d'Arguin (Dodman *et al.* 1997). Essentially all birds recorded in the Banc d'Arguin belong to *P. c. lucidus* (Isenmann 2006), although the presence of *marrocanus* and *sinensis* may occur from time to time. In January 1999, 15,950 birds were recorded from West Africa including 6,957 in Senegal and 7,880 in Mauritania (also a surprising 45 in Mali), this being a year of excellent coverage of coastal sites of southern Mauritania and of Senegal (Dodman *et al.* 2003). During coordinated coastal surveys of 2014, 25,373 were recorded from between Mauritania and Guinea-Bissau (IWC database).

Although there are occasional records of small numbers from between eastern Senegal and eastern Nigeria, this species is essentially a vagrant or at least very rare throughout much of West Africa, and the coastal population of western West Africa seems geographically distinct from Eastern Africa, which extends as far west as the Lake Chad Basin. Dodman (2001) proposed a population estimate of 35,000, based on up to 15,000 for the Banc d'Arguin and 20,000 from southern Mauritania to Guinea. This would seem to be an underestimate based on more recent available data.

[Check with East Atlantic flyway analysis before considering a new population estimate & trend.]

Population *lucidus*, Southern Africa

In Southern Africa, the coastal breeding population numbered 2,524 pairs between northern Namibia and the Eastern Cape Province in 1977-1981, of which 1,422 pairs were in Namibia. Censuses of the coastal population in the 1990s give an overall estimate of 3,106 breeding pairs (du Toit *et al.*, 2002). However, this figure uses a combination of data from different years, and should probably be viewed as a maximum. Hockey *et al.* (2005) summarises breeding data from other areas, including inland sites, the most significant ones being at Lake St Lucia, KwaZulu-Natal (where there were only 80 pairs in 1975 compared with at least 300 pairs in 1964 (Berruti 1980)), the former Transvaal, where there are about 600 pairs (including up to 200 pairs at Barberspan), and in Zimbabwe, which has over 500 pairs (Tarboton *et al.* 1987; Hustler & Underhill 1997). In 1996, at least 6 pairs bred at Inhaca Island, Mozambique (De Boer & Bento 1999), although Parker (1999) estimates there to be 3,000 birds in southern Mozambique, mainly along the coast. Numbers fluctuate somewhat in southeast Botswana, where this species has benefited from dam construction, the highest count being 600 in July 2002; many sites in Botswana support breeding, with perhaps the largest number being at Letsibogo Dam, where there were 170 active nests in July 2003 (Tyler 2011).

Regional totals provided in the IWC database reach are usually between about 4,000 and 11,000 in January counts, rather less in July counts. These fluctuations favour basing a population estimate on breeding data.

Hockey *et al.* (2005) summarise that the overall population in Southern Africa is at least 3,700 pairs or 13,000 individuals, based on 2,500 pairs along coastal Namibia and South Africa, >500 pairs in Zimbabwe, 600 pairs in northeast South Africa and small numbers in Botswana. Botswana may support around 300 pairs (figures from Tyler (2011), whilst there is a reasonable breeding population in southern Zambia; Dowsett *et al.* (2008) report breeding from 10 atlas squares, the highest record being of 500 nests on the Kafue Flats, whilst 2000+ birds have been counted in the Itezhi-Tezhi area since the lake was formed in 1975. Breeding also occurs in Angola, especially in southern coastal areas, where there are likely to be several breedings sites, includinug the Cunene River mouth (Dean 2000). Dyer (2007) found 60 nests at Baia dos Tigres in southwest Angola in November 2005, whilst Simmons *et al.* (2006) counted 600 birds and <300 nests during aerial surveys in September 2001. If there were around 750 pairs in southern Zambia, about 100 pairs in Mozambique and about 250 pairs in Angola, the regional total may be around 5,000 pairs or 15,000 individuals. This is slightly more than the estimate of Hockey *et al.* (2005), but they do not include data from north of the Zambezi (Angola and Zambia), which form part of the same population.

Du Toit *et al.* (2002) propose that the population is stable. Crawford analysed trends from ten islands in the Western Cape province of South Africa over a 29-year period and found that the breeding population remained more-or-less stable, with no discernible long-term trend, although there were large fluctuations.

[Add sentence about overall distribution]

***Phalacrocorax capensis*, Cape Cormorant**

Du Toit *et al.* (2002) stated "this strictly coastal marine species breeds from southern Angola, through Namibia and to the Eastern Cape of South Africa. Its non-breeding distribution is from South Africa north along the coast to Gabon, where it is a vagrant. The species is declining at a rate of over 70% and is likely to continue to decline, with threats including a loss of prey base, especially anchovy and predation at breeding colonies. There is high juvenile mortality, especially in years of food shortage."

During 1977-1981 277,000 pairs bred at 51 localities, with170,500 pairs at 24 localities in Namibia and 106,500 pairs at 27 localities in South Africa (Hockey *et al.* 2005). The total breeding population fell to about 163,000 pairs in 1988, about 107,000 pairs in 1993, and about 72,000 pairs in 1996 (Crawford 1999), indicating a population in 1996 of 216,000, whilst Crawford *et al.* (2001) provide a population estimate of 220,000 – 330,000 birds. This estimate (referenced in Hockey *et al.* (2005)) was used as the basis for the estimate in WPE4 of 300,000. Simmons *et al.* (2006) counted 4,000 birds and 2,000 nests at Baia dos Tigres in southwest Angola during aerial surveys in September 2001.

The strong decline from around 1980 to the mid 1990s may be part of a natural cycle because in South Africa the breeding population is related to the abundance of anchovy (Crawford & Dyer 1995; Crawford 1999; Barnes 2000), though there are certainly a number of other threats to this species. Du Toit *et al.* (2002) made a comprehensive review of all breeding nests recorded between 1977 and 2001. These were added to estimate 209,473 breeding pairs, but it does not seem feasible to add figures from different years, as over this period a number of sites were abandoned. About 60,000 nests have been recorded since 2000, a figure not very different from the estimate of 1996.

Numbers fluctuate considerably during annual waterbird counts. The highest counts to date come from 2014, when over 144,000 were recorded in Namibia alone, including just over 80,000 at Sandwich Harbour and just over 60,000 at Swakop – Walvis (30km beach).

Crawford *et al.* (2007) analysed 50 years of breeding data from the Western Cape and Namibia and considered there to be around 100,000 pairs in 2005/06, approximately the same as in 1956/57. However, numbers varied considerably in between, peaking around 1980 before dropping again to the 100,000 pairs mark around 1995/96; (estimates of 99,000 pairs in 1995/96, 98,000 pairs in 2004/05 and 92,000 pairs in 2005/06). Thus, in 20005/06, the 50-year trend was stable, the 20-year trend was decline and the 10-year trend was either low decline or stable.

Phalacrocorax *neglectus*, Bank Cormorant

Du Toit *et al.* (2002) state that "this is a strictly marine species endemic to coastal SW Africa, breeding and occurring in Namibia and South Africa. A loss of prey base is the main threat: fluctuations in numbers of gobies resulted in a decline in the number of Bank Cormorants in central Namibia. Developments at breeding sites also pose a threat. In 1978-1980, the global population totalled at least 8672 breeding pairs; this number decreased to 4888 (1153 in South Africa and 3735 in Namibia) in 1995-1997. The populations at Mercury and Ichaboe Islands, Namibia, which supported 71% of the global population in 1980, suffered the greatest losses during this period. Most recent censuses give an overall of 3241 breeding pairs, signifying a further reduction in the overall population size, estimated at three times this figure, 9723. The species would appear to have declined by 46% over 2.3 generations (17 years), which is equivalent to 60% in the three most recent generations." Later increases at Mercury (1,580 – 1,690 pairs in 2004, Hockey *et al.* (2005)) give rise to the population estimate of 11,100 used in WPE4.

Cooper (1981) reported 9,022 pairs representing approximately 18,000 adult birds in 1975-81, based on counts of occupied nests and nest spots. Cleary significant declines have taken place in past years, and this species merits conservation attention. Crawford (2007) attributes the declining trend to a lowered productivity of Rock Loobsters, a key component of its diet in South Africa. Crawford (2007) also details trends from 10 islands in the Western Cape, clearly showing a significant decline – about a halving of the breeding population – from 1978 to 1994. However, from 1994 to 2006, the population at these sites remained fairly stable around the 300 pairs mark. If this reflects patterns for the population as a whole, it may thus be that the population has stabilised at a lower level than was found in previous decades.

***Phalacrocorax coronatus*, Crowned Cormorant**

Du Toit *et al.* (2002) state that "this species is endemic to coastal SW Africa, where there are 48 historical breeding sites between Walvis Bay, Namibia and Cape Agulhas of the Western Cape of South Africa. Its non-breeding range extends northwards to northern Namibia, but not beyond the Western Cape in South Africa.

The global population in 1977-1981 was estimated at 2,665 breeding pairs, of which 977 were in Namibia and 1,688 in South Africa. The colonies in the Northern Cape may have decreased by about 250 pairs since then, though overall the population is believed to be stable. Most recent censuses give a total of 2,904 breeding pairs, yielding a population estimate of 8,712."

Hockey *et al.* (2005) cites an estimate of 8,000 birds based on Crawford et al. (1991). Crawford (2007) indicate that the population estimate by Du Toit *et al.* (2003) erroneously attributed a population of 238 pairs of to Geyser Island in 1978, whereas no pairs bred at that locality in that year. Thus, an estimate of 8,000 appears to be more in keeping with analyses of the 2000s.

Most sources agree that the overall population is probably stable. The populations at Ichaboe and Possession Island in Namibia in the late 1990s were similar to levels recorded in 1977-81 (J-P Roux, *in litt.*). Crawford (2007) found the number estimated for 10 islands to be relatively stable at about 800 pairs from 1978/79 – 1990/91, whilst it fluctuated between 800 and 1,200 pairs until 2002/03 and then increased sharply to more that 1,750 pairs in 2004/05 and was above 1,250 pairs in the following two seasons.

4. Herons & Egrets

Egretta vinaceigula, Slaty Egret

This vulnerable species has a restricted range centred around wetlands of central-southern Africa. Key sites include Botswana's Okavango Delta, Zambia's Kafue Flats and Namibia's Caprivi Strip, but this very secretive heron is probably fairly widespread within its limited range. Leonard (2001) suggests it occurs in wetlands over a wide area of Zambia, whilst a count of 23 at Zambia's Lochinvar National Park on the Kafue Flats (Bulletin ABC 7:2 2000) is deemed high, although records here have been fairly regular. In 2002, 54 were recorded at one pan in the Liuwa Plains in Zambia's Western Province. Tyler & Bishop (2001) propose a breeding population range of 100-1,000 and a non-breeding population of 2,000 for the Okavango, from where a breeding colony of hundreds and a colony of 50-60 pairs have been reported. It also occurs in southeast Angola and in Shaba Province, RDC and in the Zambezi Delta in Mozambique (BirdLife International 2000).

The estimate of 3,000-5,000 provided in Threatened Birds of the World (BirdLife International 2000) seems appropriate, whilst the declining trend (proposed by the same source) may be pertinent given recent a range of threats, including chemical spraying operations in the Okavango (BirdLife Botswana, unpublished), though data from Zambia in the 1990s suggested the population there may be on the increase. Or perhaps some increases in Zambia reflected influxes from the Okavango? Tyler (2013) indicate that there are few data on population trends but in some countries the species has declined or is believed to be declining; this may however, merely reflect changing climatic conditions from year-to-year or on a longer time scale.

Slaty Egret undertakes fairly extensive movements eastwards from Botswana during the wet season to wetlands around Lake Malawi and along the Shire and Zambezi Rivers in Malawi and north-western Mozambique (Scott 2002). However, these migratory and/or nomadic movements are only poorly understood, and further investigation is needed.

Egretta ardesiaca, Black Heron / Black Egret

This widespread species appears to be nowhere very numerous and has a rather patchy distribution. A total of 2,502 were recorded from across sub-Saharan Africa (30 participating countries) in the January 1998 AfWC (Dodman *et al.* 1998), whilst high counts include 1,458 at Lochinvar, Zambia in January 1994 (Taylor 1994), 1,707 at the same site in January 2001 (Bull. ABC Vol.9 No.1 2002), 1,500 from Nyumba ya Mungu, Tanzania in December 1995 and 1,558 at Waza-Logone in Cameroon in January 1996 (Dodman & Taylor 1996). There is a report of 10,000-20,000 birds in Guinea-Bissau in October-December 1981 (del Hoyo *et al.* 1992). It is a common resident in northeast Nigeria, with records of flocks of up to 50 birds (Gustafsson *et al.*, in press). The current estimate of B/C is retained. *E. ardesiaca* is largely absent from the Central Africa tropical forest block (Brown *et al.* 1982). It is rarely recorded in the Kivu region of eastern Democratic Republic of Congo (Demey *et al.* 2000). It is difficult to ascertain the trend of such a widespread species, whose movements are rather poorly understood, and IWC data does not suggest any pattern in trend status. The highest count was of close to 10,000 birds across the continent in January 2006, the majority recorded during aerial surveys of the Lake Chad area, including 6,304 birds on the Nigerian sector of the lake.

Egretta garzetta, Little Egret

Population *garzetta*, Africa (breeding)
Fishpool & Evans (2001) estimate the population as C/D, giving a 1% threshold of 1,000. This population is boosted during the northern winter by non-breeding visitors from the Western Palearctic, so it is hard to develop an estimate based largely on January AfWC data. There may also be some confusion between this species and other white egrets, in particular *E. gularis* (sometimes considered con-specific), which occurs in both coastal and inland sites. However, it seems likely that the population is much greater than the upper limit of C (100,000), given its wide and not patchy distribution over much of its range. Further, some data from the AfWC suggests a number of sites that support substantial populations, such as Lake Victoria, for which Baker (1997) estimates a total population of 100,000. A total of 28,120 were recorded in Tanzania in January 1995 (Dodman & Taylor 1995), including 23,493 from Lake Victoria, in a survey that took in less than 20% of the lake; many known roost site were missed and other roosts were counted from only one direction (N. Baker, *in litt.*). Based on these counts, Baker (1996) estimated there to be 120,000 – 150,000 in Tanzania, assuming that very few would be of Palearctic origin. Baker (1996) futher mentions an earlier suggestion (D.A. Turner pers. comm. to N. Baker) of no more than 10,000 pairs for East Africa. Ten years later, 36,355 were counted in Tanzania, with records from across the country (IWC database).

In Southern Africa, Dean *et al.* (1988) report of up to 1,000 individuals at fishing harbours in Angola, whilst 2,000 have been estimated to occur in southern Mozambique (Parker 1999), and 1,400 along South Africa's coast (Hockey et al. 2005).

Overall, this is a widespread and often numerous bird in Africa in all seasons, found at coastal and inland wetlands, though it is largely absent from much of the Congo Basin (Brown *et al.* 1982). Dodman (2002) proposed a population estimate of 200,000-500,000. The population is likely to be stable, due to its widespread nature and adaptability to almost any shallow wetland habitat; IWC data from 2003 – 2013 show no clear trends.

***Egretta gularis*, Western Reef Heron / Western Reef Egret**

Population *gularis*, Western Africa from Mauritania to Gabon
Fishpool & Evans (2001) estimated B+ (B/C: 10,000 – 100,000) for this population and a 1% level of 250, which is supported here. 3117 birds were recorded from West Africa in January 1998 plus 35 from Central Africa, all in Cameroon (Dodman *et al.* 1998). The breeding population of Mauritania's Banc d'Arguin is some 745 pairs (PNBA 1988). White morphs of this population are difficult to distinguish from *E. garzetta*; this estimate may need to be revised (probably upwards) if further research identifies more inland white egrets as this species. The small population breeding in Mali's Inner Niger Delta is estimated at 80-110 pairs (del Hoyo *et al.* 1992).

Imputed count totals from IWC data analysis yielded an average 5-year mean of 6,443 from 2008-2012, the highest figure being over 36,000 in 2005. Coordinated coastal counts in 2013 (less extensive) and 2014 yielded 8,417 and 11,334, with most birds in Mauritania, Guinea-Bissau and Senegal. There were some hundreds in 2014 in Guinea, Ghana and Sierra Leone, but only 116 in coastal Cameroon, indicating that this species is much scarcer further south along the coast and into the Gulf of Guinea. Van de Waarde (2007) estimated 190 – 290 birds for the whole Cameroon coastline based on extensive surveys of 2007. Breeding colony size in Mauritania's Banc d'Arguin varies widely between years, with a high of 1,900 pairs in 1997 (Isenmann 2006). As most key sites supporting this species would have been included within the surveys of 2013 and 2014, a maximum of 100,000 would seem to be too high for this population. The earlier estimate is thus refined to 10,000 – 50,000 birds. The population is thought to be stable, due to the relative isolation of breeding colonies, some of which occur in protected areas, the extensive availability of suitable habitat and the egret's dependence on these habitats, preventing its expansion into other areas.

Population *schistacea*, Coastal NE Africa / Red Sea
Fishpool & Evans (2001) estimated B+ (B/C: 10,000 – 100,000) for this population and a 1% level of 250. Although this coastal heron is widespread on both sides of the Red Sea, it is rarely numerous. Jennings (2010) estimated the whole Arabian population to number 3,000 breeding pairs, with the majority in the Arabian Gulf, and figures of only 69 (Yemeni islands) and 35 pairs (Tiran Island), whilst an aerial survey along the Arabian Red Sea yielded only 422 birds in February 1993. Goodman & Meininger 1989) consider a colony of 40 – 60 pairs in mangroves off Manqata noth of Nabq to be the largest in Egypt, whilst elsewhere there are numerous small colonies along the Red Sea coast and on islands. PERGA/GEF (2003) mention breeding in Al Wajh in northern Saudi Arabia and Shobuk Islands in Sudan, and provide estimates of 20 – 40 breeding pairs in Djibouti, 130 – 200 pairs in Egypt, about 1,000 pairs in Saudi Arabia. This heron often breeds as solitary pairs as well as in loose colonies. Grieve & Millington (1999) estimated 35 – 40 breeding pairs breeding on

Egyptian islands at the mouth of the Gulf of Suez in July 1998. De Marchi et al. (2009) recorded 150 breeding pairs on 20 Eritrean islands, the largest colony being 21 at Ras Tarma. In Somaliland, Archer & Godman (1937) noted that it bred in 'considerable colonies, or maybe just a few couples together, in the mangrove creeks of Saad Din and along most of thr mangrove creeks of the mainland'. No indication of numbers is given, neither by Ash & Miskell (1998).

The Western Reef Egret is recorded during waterbird surveys along Red Sea coasts, and this is a familiar bird even at coastal towns. However, numbers are generally rather low, indicating a widespread but relatively sparse population. For instance, only 20 birds were found during extensive surveys of Egyptian wetlands in winter 1989/90 (Meininger & Atta 1994). Welch & Welch (2001) recorded 53 along the Djiboutian coast in February 2001. However, a much higher number of 408 were recorded the following year (IWC database). Jama (unpubl. 2008) found 55 during coastal surveys of Somaliland in January 2008. This population is an uncommon non-breeding visitor to Kenya, especially in coastal mangroves (Zimmerman *et al.* 1996).

The above overview of breeding pairs would suggest that the upper limit of 100,000 birds is much too high. Potential maximum estimates of breeding pairs are: Egypt: 200, Saudi Arabia: 1,000, Yemen: 200, Sudan: 500, Djibouti: 100, Eritrea: 1,500, Somaliland: 1,500. This yields some 5,000 pairs or 15,000 birds.

The population is considered to be stable. It does not seem adversely affected by man, and there are no major changes in availability of its habitat.

***Egretta dimorpha*, Madagascar Reef Heron / Madagascar Reef Egret / Dimorphic Egret**

[There is not full agreement concerning the specific status of *Egretta dimorpha*, which is sometimes classed as the sub-species *dimorpha* of *E. garzetta*. Here, it is treated as a full species, with three main breeding populations, one along the East African coast from Kenya to Mozambique, another in Aldabra and the third, which occurs widely in Madagascar. It is thought unlikely that there is regular mixing between birds in these different and quite separate areas, so three preliminary populations are proposed in order to highlight the very different status of each. The combined 1% level of these three proposed populations is in agreement with Fishpool and Evans (2001), who give a continental 1% level of 250.]

Population *dimorpha*, Coastal East Africa
The status of this population is confused by the presence of other egrets: Zimmerman *et al.* (1996) describe *E. gularis, E. garzetta* and *E. dimorpha*, all of them occurring along the coast, with *E. dimorpha* being the only strictly marine species. *E. dimorpha* breeds at the very SE extremity of Kenya on Kisite Island (Bennun & Njoroge 1999), but most breeding colonies are in Tanzania, which supports the bulk of this population. Although only 197 were recorded in the nationwide waterbird census of Tanzania in January 1995 (Dodman & Taylor 1995), this census did not include Zanzibar and Pemba, where extensive surveys in January 1998 produced 792 birds, important sites being Pemba south (166 birds) and Menai (Zanzibar), with 247 birds (Dodman et al. 1999). 764 birds were recorded in Tanzania's January 1995 count, including 515 at Mtwara wetlands (IWC database). The offshore island of Mbudya near Dar es Salaam provides safe nesting for *E. dimorpha*; 400 were recorded here in 1995 and 461 at Mafia Island in 1988-89 (Baker & Baker 2001). Bregnaballe et al. (1990) recorded 1,525 birds along 127km of coastline, an average of 12 birds per km. Considering that Tanzania has 1,600km of coastline, Baker (1996) estimates 15,000 - 20,000 for the country. No large counts appear to be have been recorded from the extensive Rufiji Delta. There is limited data from Mozambique, but AfWC counts from 1996, 1997 & 1998 yielded only 8 birds in 1996 and zero in subsequent years. Whilst few sites are counted in northern Mozambique, all counts included the Bazarutos Archipelago, which surely has suitable habitat for this species.

As Tanzania seems to support the bulk of this population, Dodman (2002) erroneously proposed a population estimate in the order of 10,000 based on Baker (1996), although the actual estimate of Baker (1996) was 15,000 -20,000, which is now adopted. It is likely to be stable due to the relative safety and inaccessibility of some breeding colonies.

***Ardea cinerea*, Grey Heron**

Population *cinerea*, sub-Saharan Africa (breeding)
This is a widespread population in sub-Saharan Africa. Fishpool & Evans (2001) proposed a continental population estimate of D, which would apply equally to this population, as those of Madagascar and Mauritania are significantly smaller. Harrison *et al.* (1997) suggested there were between 6,000 and 10,000 in Southern Africa. Approximate sub-regional totals in January 1998 were 12,000 for Western Africa, 2,000 for Central Africa, 1,400 for Eastern Africa and 1,200 for Southern Africa. Grey Heron breeds in a few widely

scattered localities in Kenya (Zimmerman *et al.* 1996), but is probably much more widespread in Tanzania, where 4,025 were recorded in January 1995, suggesting a 'guesstimate' of around 8,000 birds of this population (Baker 1996). Hundreds of pairs regularly breed at Tanzania's Nyumba ya Mungu (N. Baker, *in litt.*), this being by far the largest known colony in Eastern Africa (Baker & Baker 2001). Grey Heron has recently been recorded breeding in Cape Verde.

The presence of birds from Palearctic-breeding populations makes it difficult to base estimates on January count data count data from West and Eastern Africa. The highest count of Grey Herons from across sub-Saharan Africa was about 15,000 in 2007, which included nearly 10,000 in Mali (IWC database).

Dodman (2002) supported the population estimate of D, indicating 100,000 – 1,000,000, considering that it was most likely relatively stable, given its widespread occurrence and general adaptability. However, given the much lower regional estimates of up to 10,000 in Southern Africa and generally low counts, it is clear that this heron is rarely abundant, rather a widespread and generally low-density species. So, the upper estimate of 1,000,000 seems far too high. A more conservative upper limit of 300,000 is proposed, based on up to 50,000 in Southern Africa (including Angola / Zambia / Malawi), up to 100,000 in Eastern Africa, up to 100,000 in Western Africa, and up to 50,000 in Central Africa.

***Ardea melanocephala*, Black-headed Heron**

Fishpool & Evans (2001) gave a population estimate of D for this species with one population in Africa. Althogh widespread across Africa and able to accommodate agricultural landscapes, it is only rarely numerous, and the upper limit of this estimate appears too high. This is refined to 100,000-300,000, on a par with *A. cinerea*. Few sites attain the numbers counted at Cameroon's Waza-Logone, where 1,277 were recorded in January 1998 (Dodman *et al.* 1999). This may be due in part to its under-recording during the AfWC, as this is much more a bird of grasslands and agricultural lands than wetlands. The largest count in the IWC database is from January 2001, when around 6,500 were recorded in the Lake Chad / Logone area of Chad and northern Cameroon. Brouwer & Mullié (2001) estimate a national population of over 1,600 for Niger. The species is widespread, but can be quite localised, found usually in floodplains and grasslands. Baker (1996) suggests that this species may derive a degree of protection from its association with villages, as well as being able to exploit the nearby pasture and rice fields, and further suggests that Tanzania supports some 20,000 birds. Hockey et al. (2005) consider it to be generally widespread in Southern Africa away from more arid regions, whilst agriculture and alien trees have facilitated range expansion and an increase in breeding colonies. Del Hoyo *et al.* (1992) considered that this species was increasing.

***Ardea purpurea*, Purple Heron**

Population *purpurea*, Tropical & sub-tropical Africa breeding

This heron occurs widely in tropical Africa and marginally in sub-tropical Africa (South Africa). There are quite large breeding colonies in several extensive wetlands, especially in floodplains, but it is also found at small wetlands, and could be increasing in some areas due to increases in habitat availability at man-made wetlands. In Tanzania, this species occurs in 30% of the atlas squares, indicating the extensiveness of available habitat here (Baker & Baker, draft: 2002). Important sites include Mali's Inner Niger Delta and Sudan's Sudd swamps, though populations in the Sahel are boosted by migrants from Europe. Breeding has been reported from several areas of Democratic Republic of Congo, including nests in tall *Ceiba pentandra* trees in the swamp forests of the Ngiri (Demey *et al.* 2000).

Rose & Scott (1997) gave a population estimate of C, which Dodman (2002) revised to 75,000-100,000, considering that the total would be towards the higher end of this estimate. Dodman (2002) also suggested that the population was stable, due to the widespread availability of habitat and this heron's ready but low-key adaptation to man-made wetlands.

Although this heron is regularly recorded during annual waterbird counts, data from January counts in Western and Eastern Africa cannot really be used, due to the presence of migrants from Palearctic-breeding populations. The highest July count was of 643 birds in Gashua / Gwayo in Nigeria's Hadejia-Nguru wetlands. Such a count suggests that this and other large floodplains could host quite siezable numbers of this swamp-loving bird. However, general IWC counts are rather low (usually in low hundreds in July counts for whole of Africa), and there are no recent data available to improve the earlier size and trend estimates.

***Egretta alba*, Great White Egret**

Population *melanorhynchos*, sub-Saharan Africa & Madagascar

Rose & Scott (1997) gave an estimate of C, based largely on data from Tanzania (Baker 1996). High counts include an estimate of 19,074 from the Sudd (Range Ecology Survey 1983), 2,488 from Tanzania (Dodman & Taylor 1995), and 6,205 from West Africa and 1,901 from Cameroon in January 1998 (Dodman *et al.* 1999). 630 breeding pairs were recorded at Lac Débo and Lac Walado Débo in Mali's Inner Niger Delta in 1986 (Altenburg *et al.* 1986). 678 have been recorded at Lake Sahaka in Madagascar (ZICOMA 2001), and the species is widely distributed. It also occurs in Central Africa, where it is most likely to be heavily under-recorded. For instance, 156 were recorded in The Congo and 5 in Gabon in the AfWC in January 1998 (Dodman *et al.* 1999) and 18 in the town of Kisangani (Democratic Republic of Congo) in July 2001 (Upoki, 2002). This widespread occurrence in Central Africa and its generally fairly common status across much of its range merits increasing the population estimate to a low D, i.e. 100,000-500,000.

It is suggested here that the status of this population is stable, given its widespread distribution and adaptability to a wide range of wetland habitats. Although the species has been listed as regionally threatened in East Africa (Bennun & Njoroge 1996), it does not seem to be in particular threat over most of its range, nor indeed in Tanzania, where it may even have increased due to some large artificial impoundments such as Nyumba ya Mungu and Mtera, with fairly recent increases also at Lake Segara and the rice schemes around Usangu (N. Baker, *in litt.*).

***Mesophyx intermedia*, Yellow-billed Egret / Intermediate Egret**

Population *brachyrhyncha*, sub-Saharan Africa
Fishpool & Evans (2001) suggested a population estimate of C/D. However, this species appears to be much less numerous than *Egretta alba* almost exclusively throughout its range (AfWC reports 1991-1998). Zimmerman *et al.* (1996) report that this species is seldom numerous away from breeding colonies. Up to 2000 are reported from the Tana River Delta (Bennun & Njoroge 1999), the only site in Kenya to meet the IBA species threshold of 1000. The heronry of Koumbé Niasso supported 530 breeding pairs in 1985, compared to 1600 pairs of *C. albus* (Robertson 2001). Based on this information Dodman (2002) proposed a more conservative estimate of C (25,000 – 100,000).

[Check more recent data, including South Sudan]

***Bubulcus ibis*, Cattle Egret**

Population *ibis*, Southern Africa
The Cattle Egret colonised Southern Africa from tropical areas to the north in the 1920s-1940s, in part due to an increase in cattle farming; reporting rates are highest from the grasslands of central and eastern Southern Africa (Harrison et al. 1997, SABAP2). In South Africa and the Western Cape, Cattle Egrets make partly nomadic seasonal movements according to rainfall. Some birds disperse into tropical Africa, with ringing recoveries found as far north as CAR and Uganda (Underhill et al. 1999). This, then, is a partially migratory population, exploiting seasonal abundance in the region. The current population estimate is D (25,000 – 100,000). Parker (1999) estimate 1,500 for southern Mozambique. The highest IWC count from across the region is of just under 25,000 in 2006. Imputed population figures based on count data fall between around 14,500 and 70,000, with an average of close to 40,000 over 22 years of data. This suggests that the current estimate is of the right order.

This population is taken to occur south of the Zambezi and Cunene rivers. The main feature of the Southern African population is its partial migratory behaviour in a region with distinct winter and summer seasons.

TRIM analyses of IWC / CWAC data suggest a large decline of around 10.5% from 2003-2012 (and 8.7% from 1988 – 2012). This may reflect a genuine decline in the size of the population, but it could also indicate a shift in seasonal movements, noting that count data are limited to specific months of the year. No doubt the species merits closer monitoring in the future.

Population *ibis*, Tropical Africa
This population extends to many of Africa's islands, including Cape Verde, São Tomé and Príncipe, Madagascar and the atoll islands of Seychelles. In Madagascar they are widespread and common (F. Hawkins, *in litt.*), as they are over much of the African continent. Some of the most important breeding colonies in Africa are in the flooded forests of the Inner Niger Delta, Mali. The current estimate of E (>1,000,000) is clearly correct, in that there must be over 1 million birds, but it is difficult to set a maximum. The population could well reach several million, and a new maximum best guess estimate is proposed of 10,000,000.

Population *ibis*, NW Africa

The Cattle Egret is resident in Morocco, Algeria and Tunisia, whilst some birds also winter in the area from sourthwest Europe (Iberia). This successful species has expanded its range across northwest Africa, especially in Morocco, where Thévenot et al. (2003) detail colonies reaching some 15,000 – 20,000 pairs in the 1980s, though no doubt the population has increased since then. There are at least 3,500 pairs breeding in Algeria (Isenmann & Moali 2000) and at least 500 pairs breeding in Tunisia (Isenmann et al. (2005), but again, increases during the 2000s are likely. The WPE3 population estimate of 100,000 – 150,000 based on Hafner (2000) is probably still of the right order, whilst trend is most likely still on the increase.

***Ardeola ralloides*, Squacco Heron**

Population *paludivaga*, sub-Saharan Africa & Madagascar

Rose & Scott (1997) proposed a population estimate of C (25,000 – 100,000), with a 1% level of 500. 18,414 are recorded from the Sudd in Sudan (Robertson 2001), and there are high numbers recorded from a range of other sites. The population is widespread, with regular records from West, Central, Eastern and Southern Africa and Madagascar (AfWC reports). 1482 were recorded in nationwide counts in Tanzania in January 1995 (Dodman & Taylor 1995), where Baker (1997) suggests a population of 20,000, more recently suggesting (N. Baker, *in litt.*) nearer 30,000. Brouwer & Mullié (2001) estimate an average population of 3,141 from 1992-97 in Niger, but this may well include the European / Mediterranean breeding population *ralloides*. Dodman (2006) considered that the earlier population estimate of C thus appeared to be too low, given its widespread occurrence and generally favourable status across Africa, and proposed an estimate of 300,000-600,000, which may itself require future revision upwards in future. Dodman (2002) considered that the population was likely to be stable, or even increasing, given its adaptability to both coastal and inland wetlands and also to man-made wetlands.

***Ardeola idae*, Madagascar Pond-heron / Squacco Heron**

There is one population, *idae*, which breeds in small colonies in many places over the high plateau of Madagascar (F. Hawkins, *in litt.*), on Aldabra, where the main known breeding site is Ile aux Aigrettes (Betts 2002) and on the atoll of Europa in the Mozambique Channel. Rocamora & Skerrett (2001) estimate the Aldabra population to be 20-50 pairs. F. Hawkins (*in litt.*) believes that colony size in Madagascar is often less than 10 pairs, and there might be 100-200 colonies or perhaps substantially less, giving a maximum estimate of some 6000 birds. One of the highest counts is from Lac Alarobia or Tsarasaotra near Antananarivo, where there were 162 in January 1998 (Dodman *et al.* 1999). However, no other sites tend to meet the previous 1% level of 100, used for instance in the IBA programme, despite its occurrence at a wide number of sites. This indeed suggests that numbers are nowhere high. The population on Europa numbered up to 15 pairs in 1996 (Le Corre & Safford 2001). Madagascar Pond-heron was confirmed to breed at Bouéni Bay on Mayotte, with 15 pairs in November 2003 and 10-20 pairs in 2007 (Rocamora 2004, N'dang'ang'a & Sande 2008), although most birds recorded in the Comoros / Mayotte are migrants (Louette et al. 2004).

This species migrates to continental Africa, and numbers of non-breeding *A. idae* in Tanzania tend to be highest in July and August (N.E. Baker, in press). N.E. Baker (*in litt.*) reports that 'improved coverage of Tanzania's Kilombero Valley and the Selous Game Reserve strongly suggests that this area may support perhaps several hundred or even 1,000. It is rare in northern Tanzania and does not occur with any regularity at Nyumba ya Mungu or any of the Rift Valley lakes. It is possible that, in line with other Malagasy migrants, it moves up the western Rift to RDC and into the coastal lowlands of Tanzania from the southeast. It was regular in low numbers (probably <100) in and around Dar es Salaam in the 1980s; though these habitats have been urbanised since then, there are many small fresh water pools along the coastal strip that could support a considerable population.'

Dodman (2002) proposed an estimate of 2,000-6,000 based mainly on the above breeding information. Safford & Hawkins (2013) consider that the population size has not been convincingly estimated, but do not provide new information to improve it. The species has declined substantially since the 1940s in Madagascar, although it is still regularly seen over much of Madagascar (Safford & Hawkins 2013).

***Ardeola rufiventris*, Rufous-bellied Heron**

This species occurs in inland wetlands, especially papyrus beds, in Eastern, Southern and eastern Central Africa. It is probably under-recorded across its range due to the inaccessibility of its habitat and its skulking nature. Fishpool & Evans suggest a population estimate of 'B+' (about 25,000 or more). The species is never recorded in high numbers in the AfWC (AfWC reports 1991-1998), e.g. 46 from Southern Africa in January 1998 (Dodman *et al.* 1999). The nationwide count of Tanzania in January 1995 was 84 (Dodman & Taylor

1995), though Baker (1997) gives a country estimate of >3,000. There are some high counts, such as 1000+ at Tanzania's Usangu Flats (Scott 1999). The current population estimate of B/C is supported, with a 1% level of 250.

***Nycticorax nycticorax*, Black-crowned Night-Heron**

Population *nycticorax*, sub-Saharan Africa & Madagascar /Seychelles
This is a widespread heron in Africa, occurring across the Sahel belt and, in the east, from Egypt to South Africa, though its status in in Sahelian, Nilotic and northern Rift wetlands is confused by non-breeding visitors from the two Palearctic-breeding populations. This heron recently gained a toehold in Seychelles, where it is resident on four of the granitic islands (Skerrett *et al.* 2001).

In some years, around 80% of the birds counted in the IWC are from the lower Senegal Delta in Senegal, with January counts of over 34,000 in 2011, over 46,000 in 2013 and over 25,000 in 2014. There is a significant breeding colony in the delta. Although birds from the Palearctic reach Senegal, a reasonable proportion of birds present in the Senegal Delta are most likely to be resident birds, which breed at Djoudj around September / October, whilst there are colonies elsewhere in Senegambia (Morel & Morel 1990).

There were 4,000 at Mare de Goffa in Chad in January 2003 (IWC database), whilst there are AfWC records from The Congo. Lippens & Willé (1976) detail the presence of breeding colonies in DRC, in the Congo river mouth in the west and on large lakes in the east.

In Eastern Africa, Baker (1996) estimated 5,000 resididents breeders in Tanzania, with a total population unlikely to be over 20,000. It is common in Ethiopia's Rift Valley, swelled by Palearctic migrants in the northern winter; one roost of 171 birds has been recorded (Ash & Atkins 2009). There are breeding colonies in South Sudan, although larger concentrations reported are probably of Palearctic origin (Nikolaus 1989).

In Southern Africa, it is most common in the Okavango Delta and Western Cape; there are estimates of around 170 bitds in the SW Cape and 200 in southern Mozambique (Hockey et al. 2005). Wet season roost counts in the Okavango revealed 1,245 flying from reedbeds in January 2005 (Tyler 2011). It is probably resident in Malawi, with where largest concentrations are usually of 50 – 100 birds (Dowsett & Dowsett-Lemaire 2006). It is widespread across most of Zambia, where the largest known colony is of 250 nests in Bangweulu (Dowsett et al. 2008).

Given the widespread distribution of this population and the presence of breeding colonies in West, Eastern, Central and Southern Africa, the Rose & Scott (1997) population estimate of C (25,000 – 100,000) is surely too low. There may well be over 100,000 in Western and Central Sahelian Africa alone, especially noting the large breeding colonies in the Senegal Delta, and the widespread presence of breeding colonies elsewhere, for instance in Ghana (Borrow & Demey 2010) and Nigeria, where three small breeding colonies are reported from the north (Elgood et al. 1994). There are likely to be similar numbers in Ethiopia and Kenya, where it is widespread and locally common (Zimmerman et al. 1996) as in Tanzania, suggesting another 100,000 birds in Eastern and eastern Central Africa. Numbers in Southern Africa may be somewhat lower, although Botswana / Zambia / Malawi together must support several thousand. A new population estimate is proposed of 100,000 – 300,000.

This is an adaptable species, which may be found at a wide range of wetland habitats where there is some thick cover available. It quite readily makes use of new sites for roosting, such as new (invasive) thickets of *Mimosa pigra* on the Kafue Flats (T. Dodman, pers. obs.), mangroves and trees in urban parks and zoological gardens, and may well be quite dispersive, supported by its recent colonisation of Seychelles. This suggests that the population is at least stable, and may be increasing in some areas.

***Ixobrychus minutus*, Little Bittern**

Population *payesii*, sub-Saharan Africa
Fishpool & Evans propose a population estimate of C and a 1% level of 500 for this population, which occurs widely in sub-Saharan Africa. Harrison *et al.* (1997) suggest there are some 100 pairs in Southern Africa. Baker (1997) provides an educated guess of around 10,000 adults in Tanzania (both resident and Palearctic-breeding populations).

This is a bird for which IWC data only provides a snapshot of birds present; South Africa and Namibia usually produces the most records.

[Note, IWC data: record of 564 from Namibia's Lake Oponono in July 2011 needs to be checked].

***Ixobrychus sturmii*, (African) Dwarf Bittern**

This intra-African rains migrant is widespread in sub-Saharan Africa, but is not usually found in high numbers. Fishpool & Evans (2001) give an estimate of C, which is supported here. In Southern Africa the population may be about 200 pairs (Harrison *et al.* 1997), but this area is likely to be more numerous further north, especially in Central Africa. Baker (1997) considers that the population in Tanzania would be unlikely to exceed 5,000 birds. Very few birds are recorded during annual waterbird surveys across Africa.

***Botaurus stellaris*, Eurasian/Great Bittern**

Population *capensis*, Southern Africa
Fishpool & Evans provide a population estimate of about 5,000. This bird can be heard booming in the Bangweulu Swamps of Zambia which is probably one of its most northerly breeding sites. Its status in Zambia is unclear, but it appears to be in decline further south (Harrison *et al.* 1997). Further research is needed to clarify its status; it may well be more numerous in extensive swamps of Zambia and potentially other areas than currently supposed.

Taylor (2000) considered that 80% of the population in South Africa may have been lost in three generations, due to habitat loss, population fragmentation and disturbance, suggesting a national population of 233 – 344 birds (based on 101 – 151 pairs estimated, noting that polygeny occurs). Further north, it is a rare resident on isolated lakes on the Cuanza river floodplain in Angola, where it is also likely to breed in marshes on floodplains of all major rivers (Dean 2000). There are a few claims of booming calls attributed to this species in the Okavango (Tyler 2011). There are a few records from Zambia, mainly from the north, in Mweru-Wantipa, Kabonde Swamp and Bangweulu, with more irregular records elsewhere (Dowsett et al. 2008). Its northernmost breeding record is from Lake Rukwa in southwest Tanzania, close northern Zambia sites (Baker & Baker (2002). There are a few records from wetlands of southern Malawi (Dwestt & Dowsett-Lemaire 2006). It is a rare breeding resident found in reedbeds of large wetlands in Central Mozambique (Parker 2005). There are few places in Zimbabwe that could support a breeding population (Irwin 1981); one was recorded at Sand River Dam in Swaziland in July 1992 (IWC database).

Overall, it seems there may be around 200 birds in South Africa, with possible maxima of 500 from northern Zambia / Rukwa, 50 in southern Malawi, 500 in Mozambique, 50 in Botswana and 500 in Angola. These are very much approximations, but seem to indicate that the earlier estimate of 5,000 birds is too high. A new population estimate is proposed of 500 - 2,000, with status declining.

5. Shoebill & Hamerkop

***Balaeniceps rex*, Shoebill / Whale-headed Stork**

This enigmatic species occurs in swamps, especially those fringed by papyrus, in eastern Central Africa from South Sudan to Zambia. There are estimates from Jonglei, in South Sudan's extensive Sudd swamps of 6,407 in the mid wet season, 5,143 in the early dry season and 4,938 in the late dry season based on (non-specific) aerial surveys in this area (Range Ecology Survey 1983). However, the shoebill's current status here is far from clear.

There are records from Central Africa, e.g. Central African Republic (Renson, date), but it is unlikely that this species occurs widely in tropical forest zones. However, *B. rex* does occur in eastern fringes of the Congo Basin, and has been recorded nesting at Upemba National Park, whilst there are further records from the Lufira Valley and the Virunga National Park, all in the Democratic Republic of Congo (Demey & Louette 2001). Demey *et al.* (2000) document records from Virunga National Park in 1992 and Vitshumi in 1994. Shoebill has also been seen several times at Lake Tchabuganga (Mertens 1986). Another important site in Central Africa is Rwanda's Akagera National Park, where shoebill was regularly observed in the swamps dominating the eastern sector of the park. However, this park has been largely degazetted (Kanyamibwa 2001); around 50 are estimated to have remained in the area in the 1990s (Baker & Baker 2001).

Tanzania's most important area for *B. rex* is the Moyowozi-Kigosi-Malagarasi complex, which includes large areas of permanent swamps and floodplains in the west of the country. This area also includes wetlands of the Igombe and Ugalla rivers. A number of aerial surveys in this area have taken place since the 1970s, summarised by Dinesen & Baker (in press), though it is hard to gauge whether the rather different results are

due to different census techniques, varying methods of extrapolations and data interpretation or real changes in population. Parker (1984) estimated a population of 300 birds in about 200km² of suitable habitat (based on a count in 1972). Population estimates of the Tanzanian Wildlife Conservation Monitoring vary from 2,260 in 1990 to 235 in 1998, though the areas covered and the area used as the basis for the extrapolations varied considerably (Dinesen & Baker, in press). In 1992, 578 birds were counted in a survey carried out by helicopter of all the known shoebill core areas, this being extrapolated to an estimated population of 2,489 birds (Jones & Hill 1994). A rapid count in less than half of the expected shoebill core areas produced 56 birds in November 2001, possibly indicating around 134 birds if similar extrapolation methods to those used in the 1990s are applied (Dinesen & Baker, in press).

There are few records from the Kenyan and Tanzanian shores of Lake Victoria, but the Uganda shores contain several reliable sites for this species. The shoebill is in fact fairly widespread in Uganda, and occurs in 11 of Uganda's 30 IBAs (Byaruhanga *et al.* 2001). There are records also from Ethiopia, though these may not include breeding birds (Ethiopian Wildlife & Natural History Society 2001). Del Hoyo *et al.* (1992) gives an estimate of 400–600 birds for Uganda, though in 2002, D. Pomeroy & A. Byaruhanga (*in litt.*) believe that an estimate of 100 - 150 is probably realistic, based on results from various surveys, waterbird counts and data bank records.

In Zambia, the Bangweulu Swamps is the most important site, where a minimum of 232 birds was estimated to occur in 1983 (Howard & Aspinwall 1984). However, subsequent records are much lower, despite an irregular series of aerial surveys conducted in the 1990s and beyond. There were also regular sightings at Mweru Wantipa, though numbers here may have decreased since construction of a dam and subsequent rises in water level (Leonard 2001). Collar (1994) indicates that this is a low-density species, with the smallest of seven territories measured in Uganda being 2.5km^2. The species is certainly under threat, due to hunting, habitat burning and disturbance and is most likely in decline over much of its range. Approximate national totals may be in the order of:

South Sudan:	5,000+
Uganda:	100-150
Tanzania:	200-500
Democratic Republic of Congo:	<1,000
Rwanda:	<50
Ethiopia:	<50
Zambia:	<500
CAR:	irregular

Based on similar country estimates, Dodman (2002) proposed a more conservative estimate of 5,000-8,000 noting that this should be amended if new information would be available from South Sudan, from where there are previous estimates of some 10,000 birds. This estimate still seems to be valid.

6. Storks, Ibises & Spoonbills

***Mycteria ibis*, Yellow-billed Stork**

One population is given, *ibis*, which is widespread in sub-Saharan Africa. Harrison *et al.* (1997) suggested there are less than 50 pairs in Southern Africa south of the Cunene and Zambezi Rivers, whilst Barnes (2000) provides an estimate of 300 birds. Hockey et al. (2005) consider this to be an under-estimate. Parker (1999) estimated 400 birds for southern Mozambique. Tyler *et al.* (2002) found a breeding colony of 108 nests at Gadikwe Lediba in the Okavango Delta in September 2001. N. Baker (*in litt.*) recorded some 800 breeding pairs at Lake Manyara in Tanzania in May 2002. Another important site in Tanzania is Lake Eyasi, where 3,072 were recorded in January 1995 (Dodman & Taylor 1995), and 11,072 from the same site, also in 1995 (Baker & Baker 2001). Baker (1996) estimated the population in Tanzania to fall between 20,000 and 25,000. There is a record of 11,154 birds from Sudan's Sudd swamps (Robertson 2001); this is a widespread resident species in Sudan. 958 were recorded in Waza-Logone, Cameroon and 667 at Lochinvar in the Kafue Flats, Zambia in January 1998 (Dodman *et al.* 1999).

West Africa: Senegal IWC 6,650 in January 2013. Including 4,082 in Basse Casamance, a site rarely included in the IWC.

Chad: >1,000 Lac Fitri

Tanzania	20,000-25,000
Sudan	25,000-50,000
Kenya, Ethiopia, Somalia:	10,000-25,000
Central Africa:	10,000-20,000
West Africa:	10,000-20,000
Southern Africa:	5,000 – 10,000
Total:	75,000-150,000

These relatively high records suggest that the population is above the lower estimate of the 1997 C range (Rose & Scott 1997), and is probably somewhere between 50,000 and 100,000.

F. Hawkins (*in litt.*) suggests that the population in Madagascar is sedentary and does not mix with yellow-billed storks from continental Africa; thus there is a strong possibility this should be treated as a separate population. This is in need of further investigation.

Madagascar:	<1,000

[Update text according to these estimates].

***Anastomus lamelligerus*, African Openbill(ed Stork)**

Population *lamelligerus*, Sub-Saharan Africa

Byers *et al.* (1995) suggest the population is above 100,000. This is supported here, as there are many records of high congregations of this species, especially from the Sudd swamps, for which the Range Ecology Survey (1983) provides an estimate of 344,487 for the late dry season. 8,071 birds were recorded in Tanzania's 1995 waterbird census (Dodman & Taylor 1995); Baker (1996) considered that Tanzania could hold 20,000 and seasonally up to 25,000 birds. Bennun & Njoroge (1999) report of 3,530 at Tana River Delta in Kenya in the no-flood season, and 2,718 were recorded in Zambia in January 1998 (Dodman *et al.* 1999), where large breeding colonies have been observed (pers. obs.).

However, this species is much less common in West Africa, where it is essentially a dry season visitor, despite a couple of breeding records; declines have been noted in the west of its range (Borrow & Demey 2001). There was a count of 770 in coastal wetlands of Benin in 1998 (Dodman *et al.* 1999), and a high of 1,147 in January 2008, including 452 at Lac Nokoué (IWC database). In Northeast Nigeria it is present mainly during the dry season, being more common from February to April and less common from September to November, although some birds might be resident (Gustafsson *et al.*, in press). In 2000, a maximum of 500 were recorded here in February, whilst one adult was also found in a tree with a nest close to the in March (Gustafsson *et al.*, in press). In Cameroon, it is most numerous on the Sanaga River, with a coastal zone estimate of 300 – 500 birds (van der Waarde 2007).

The status of *A. lamelligerus* in Central Africa is unclear; 6 were counted at Kisangani in the forest zone of RDC on the Congo River in December 2001 / January 2002 (Upoki 2002). Demey *et al.* (2000) report of 45 at Lulimbi, Virunga National Park in May 1992. However, large flocks are likely in the wet season: Leppens & Wilme (1976) reported of a flock of >1,000 at Lac 'Idi Amin' in February 1974. This is the most common stork in Katanga, where Chapin (1932) reported enormous groups in the lakes region. Several hundred were repeatedly observed near Kiubo at the Lufira River between 2007 and 2011, with a larger gathering ('probably thousands') at Lake Kisale in 2005 (Louette & Hasson 2011).

Overall this bird is generally common, often numerous, in floodplains and other wetlands, particularly of eastern Central and Eastern Africa.

In Southern Africa, large flocks have been recorded in Zambia, where it widespread and locally numerous, with colonies usually numbering some 100 – 150 pairs, although some enormous colonies are reported from the Kafue Flats, including one of 5,000 nests (Dowsett et al. 1978). Some 500,000 birds were estimated to occur on the Kafue Flats during an aerial survey in November 1970 (Dowsett 1971). Large roosts have been recorded in Botswana's Okavango Delta, with about 5,000 birds recorded in 2001, whilst there are records of up to 3,000 birds from the Chobe River floodplain; Botswana has several breeding colonies, occasionally in excess of 1,000 pairs (Tyler 2011).

Dodman (2006) proposed a population estimate of 300,000-500,000.

Threats: Malawi (Dowestt & Dowsett-Lemaire 2006). Kenya poisoning. Hockey et al. Hadejia?? DEC

[Add update text to cover last few lines].

Ciconia nigra, Black Stork

Population *nigra*, Southern Africa, north to Zambia
Harrison *et al.* (1997) provide a population estimate of some 330 pairs in Southern Africa, south of the Zambezi and Cunene rivers. This is likely to include the few pairs in Zambia which breed on cliffs of the Batoka Gorge on the Zambezi River, but does not include breeding pairs elsewhere in Zambia. Here, it breeds in scattered localities wherever there are rocks, including localities in Southern and Eastern Province, and most likely along the Zambezi and Muchinga Escarpments (P. Leonard, pers. comm.). This population also includes breeding birds in Malawi. South of the Zambezi/Cunene, *C. nigra* breeds in all countries, in suitable locations and conditions. Parker (1999 & 2005) estimates 70 birds for southern and central Mozambique; breeding does occur.

Van den Bossche & Coulter (2002) provide an estimate of 2,853-4,740 individuals, based on 951-1,580 breeding pairs. However, this appears to include two estimates for Zimbabwe, and is thought too high. Dodman (2002) proposed a population estimate, based on the following estimates of breeding pairs per country:

Country	Minimum pairs	Maximum pairs
South Africa	200	200
Swaziland	10	10
Lesotho	10	50
Zimbabwe	100	500
Botswana	10	30
Malawi	50	100
Mozambique	10	100
Namibia	10	100
Zambia	100	300
Total pairs	**520**	**1350**
Total birds	**1560 individuals**	**4050 individuals**

The population appears to be stable.

Ciconia abdimii, Abdim's Stork

This species breeds in sub-Saharan Africa and SW Arabia. It is a rains migrant in Africa, reaching many sites as far south as South Africa. There are seasonally high flocks in Zambia, especially around November (Dodman, pers. obs.). One of the highest counts is from Tanzania, where 148,000 were recorded at Lake Engaruka Magadi in January 1995 and an estimate of 60,000 in January 1998 (Baker & Baker 2001). Baker (1996) suggests there may be a non-breeding population in Tanzania of up to 250,000 or 300,000 birds, with a further 30,000 that pass through.16,500 have been estimated to occur in the Jonglei region of Sudan's Sudd swamps (Range Ecology Survey 1983). Parker (1999) estimated 1,000 to occur seasonally in southern Mozambique. High counts in Botswana include 3,000 at Sojwe Pan in February 2006 (Tyler 2011). Abdim's Stork is a passage migrant in Zambia, usually recorded from October to April, with flocks of hundreds often recorded, and daily totals in the east surpassing 5,000 (Dowsett et al. 2008).

Records are low in West Africa from the January AfWC, but this is the dry season here, and the storks have all dispersed. This species breeds in West Africa in the wet season (May-August) in a broad belt of the Sahel and dry savannah, from Mauritania to Central African Republic, moving south at onset of the dry season, with wandering groups found in Gabon December to May (Borrow & Demey 2001). Brouwer & Mullié (1993) suggest a pre-breeding season total of 15,000-30,000 birds in Niger. Gustafsson *et al.* (in press) report it to be common during the rainy season in far northeast Nigeria, where 450 were recorded in August 2000. Christensen et al. (2008) analysed breeding sites in Niger, and estimated a breeding population in Niger of 18,157 pairs (5.7 pairs per 100km^2, and (based on about 2.6 fledglings per pair) a post-breeding population of 83,500 birds (excluding non-breeding birds). This stork also breeds throughout northern Nigeria (Elgood et al. 1994).

Dodman (2002) broadly supported the population estimate of D (100,000 – 1,000,000) in WPE2, but considered that the population was most likely to be towards the lower end of D, and proposed an estimate of 300,000-600,000, based largely on non-breeding observations and data (e.g. from Tanzania, South Sudan). The estimate of over 80,000 birds in Niger post-breeding provides new insight. This stork breeds across the Sahel zone from Senegal to Ethiopia and Somalia. Breeding densities are likely to be much lower than in Niger in the western part of the range. De Marchi et al. (2009) report of 63 pairs breeding in Eritrean islands; there is cross-continent migration into Arabia. Ash & Atkins (2009) report it as an abundant breeding resident and intra-tropical migrant in Ethiopia and Eritrea. There thus may easily be post-breeding populations of >200,000 in West Africa, perhaps up to 100,000 in Central Africa and >100,000 in Eastern Africa. The estimate of 300,000 – 600,000 thus most likely remains a suitable range.

A key site for this species in West Africa is the Hadejia-Nguru wetlands of northern Nigeria, but hunting of storks is a serious problem here, with 2,250 *C. abdimii* carcasses being found in 1996 and a further 260 being used as live decoy baits (Ezealor *et al.* 1996). Collision with power lines is a potentially growing threat. Whilst noting some hunting in Malawi (Dowsett & Dowsett-Lemaire 2006) and the menace of pesticides, Dowestt et al. (2008) considered that it was as numerous in the 2000s as in the past. Generally this bird is tolerated (and in some places welcomed) in its breeding areas, where it often nests in villages, and, despite some threats here and there, the population is likely to be stable.

***Ciconia episcopus*, Woolly-necked Stork**

Population *microscelis*, sub-Saharan Africa
This population is quite widespread in Africa, but appears to be nowhere numerous. Sub-regional totals in the January AfWC vary from year to year; in the1998 count there were 43 in Western Africa, 42 in Central Africa, 9 in Eastern Africa and 969 in Southern Africa, including 652 in 13 transects of the Okavango Delta (Dodman *et al.* 1999). The highest count is of 1,045 at Diaka Diarende in Mali in January 2009 (IWC database).

In Central Africa, 795 birds were recorded at Likouala-aux-Herbes in Congo in January 2009 (IWC database), where it ofen forms groups with Marabou Stork (Ikonga 2003). It is not very abundant in DR Congo in the forest block, but is more numerous in more open country, e.g. in the Uelle (Chapin 1932). 489 were recorded in Cameroon's Logone Floodplain in February 2000 (Zwarts et al. 2009).

28 were recorded in nationwide surveys of Tanzania in January 1995, and Baker (1997) considered there could be 1,000 – 4,000 in Tanzania. Range Ecology Survey (1983) lists a record of 2,475 from the Sudd swamps of Sudan.

This stork is not numerous in Southern Africa; there may be only less than 30 pairs in South Africa (Hockey et al. 2005) and perhaps 100 birds in southern Mozambique (Parker 1999). In Zambia it breeds in northern forests, and occurs widely as a non-breeding visitor, where flocks of up to 45 have been recorded between November and April (Dowestt et al. 2008). Migratory wet season flocks in Botswana regularly number hundreds, sometimes >1,000 (Tyler 2011).

West:	5000 - 20000
East:	10000 - 20000
Southern:	5000 - 10000
Central:	10000 - 30000

The WPE2 estimate is C (25,000 – 100,000); Dodman (2002) considered the upper limit to be too high, and a lower 1% level was attributed by bringing the estimate down to B/C (10,000 – 100,000). This fresh review attempts to refine the estimate, based on the regional estimates given, yielding a range of 30,000 – 80,000, though this there is definitely room for improvement.

Woolly-necked Stork is considered Near Threatened in South Africa due its very small population; although it has expanded its range southwards here by using man-made habitats it still depends on undisturbed coastal and riverine forest for nesting, and such habitats are generally threatened (Barnes 2000). TRIM analyses of IWC data suggest a trend of 2% increase, although information collected during fixed-month surveys may not accurately reflect the status of this bird, which favours many wooded sites, not generally covered by the surveys. No widespread threats have been details in recent years, however, and the population is likely to be stable.

***Ciconia ciconia*, (European) White Stork**

Population *ciconia*, South Africa (breeding)
The Avian Demography Unit (2001) reports that this small population has been established since at least the 1930s. The non-breeding range appears to extend into Eastern Africa as far as Egypt, with one bird even crossing into the Sinai Peninsula in 2002 (Underhill 2002). The population has apparently never been more than 10 pairs (Hockey et al. 2005). Since about 1990 it has decreased, though appears to have stabilised since about 1998 at 6 pairs. Since 2001, the number of pairs at the Tygerberg Zoo increased by one, and the last remaining pair at Bredasdorp bred again in the 2001/2002 breeding season (Avian Demography Unit 2001). So year-on-year there has been a recent increase, but overall the population appears to be stable at 6 pairs. Dodman (2002) indicated a population of around 20 birds, which might increase due to active conservation efforts. Recently, there are indications that White Stork may be becoming resident in the Johannesburg region, though no local breeding has been confirmed (Oettle 2013).

Mukherjee et al. (2003).

STA

[Add few sentences yet].

***Leptoptilos crumeniferus*, Marabou (Stork)**

This species is common and often gregarious in Eastern Africa, from Somalia to Tanzania, and inland to Uganda. Zimmerman *et al.* (1996) give a total breeding population in Kenya of about 300 pairs. There are well known breeding colonies in Uganda, and regular seasonal movements. In Eastern Africa in particular, this species may be found in urban areas and at rubbish tips and is highly opportunistic. It is also commonly found at fishing villages throughout its range. Baker (1996) estimates a seasonal maximum of 15,000 birds in Tanzania, where 1,384 birds were counted in January 1995. However, there were higher counts at non-wetland sites, such as 3,600 on the Mwanza rubbish tip; with counts also of 4,000 birds on the Wembere and 10,000 in Tarangire National Park (Baker, 1997). [Mention Sudd]. However, the marabou is much less common in Southern Africa (south of the Zambezi) and also in West Africa, where it is conspicuously absent from much of the coastal belt. There are sometimes good numbers in Cameroon's Waza-Logone area, e.g. 467 in January 1998 (Dodman *et al.* 1999) and Central Africa, but it is an uncommon resident in northeast Nigeria (Gustafsson *et al.*, in press). A new estimate of 100,000-300,000 is proposed, whilst the type of estimate is downgraded to 3, as greater account needs to be taken of birds in Central Africa. A count of 68 at The Congo's Lac Télé / Likouala-aux-Herbes (Mokoko *et al.*, 2000) could suggest a reasonable population in localities of the Congo Basin.

Sudan / South Sudan:	300,000??
Tanzania:	15,000 (3,000 resident & 12,000 visitors)
Rest of East Africa:	10,000

The Marabou Stork increased dramatically in Uganda as a breeding species, especially in urban areas, with an estimate of 5,000 birds in 1987, >1,000 breeding pairs from 1995-1999 and 700 pairs in Kampala in the 2000s and smaller colonies in many other towns, which is a recent phenomenon (Carswell et al. 2005). TRIM analyses of IWC data suggest an increase of 1%. It is considered Near Threatened in South Africa (Barnes 2000).

***Threskiornis aethiopicus*, Sacred Ibis**

Population *aethiopicus*, sub-Saharan Africa
The estimate of Byers *et al.* (1995) of >200,000 is surely correct, but it would be useful to have an upper limit / range. This is a widespread species in Africa, which can adapt to changes in wetlands. In West Africa it is fairly uncommon across a rather wide, mainly Sahelian, range. Brouwer & Mullié (2001) suggest a population estimate of around 9,000 for Niger. This species breeds in the Inner Niger Delta of Mali (Kamp & Diallo 1999), in the Saloum Delta of Senegal and various other localities in relatively small numbers, e.g. a recent record of 20 nests in The Gambia (Barlow *et al.* 1997). 2,262 were recorded in the January 1998 AfWC in Eastern Africa and 1,968 in Southern Africa (Dodman *et al.* 1999).

The Range Ecology Survey (1983) estimated 17,688 from Jonglei in the Sudd swamps of Sudan in the late dry season, and 3,000 were recorded at Sudan's Lake Kundi in January 1993 (Taylor 1993). There are a number of sites with concentrations of 500 to 1,000+ birds in Tanzania (N. Baker, *in litt.*), where Baker (1997) estimates a national population of 20,000 birds. This species is fairly widespread from the Nile River, into Northeast Africa, where it can be observed easily around Mogadishu, Somalia for instance (T. Dodman, pers.

obs.), through Eastern Africa to Southern Africa, where it is absent from dry areas. It is also widespread in Western Africa, but probably largely absent from the main Congo Basin forest block. It occurs in 36% of the Southern Africa grid cells (Harrison *et al.* 1997) and in 40% of the Tanzania Bird Atlas squares (Baker & Baker, Draft: 2002).

It is reasonably well represented in major floodplain systems of Sahelian Africa with maximum counts / estimates of 1,160 from the Inner Niger Delta (Mali), 3,616 from the Logone, 2,270 from Lac Fitri (Chad) and 17,688 estimated for the Sudd in South Sudan (Zwarts et al. 2009).

In light of these records and its wide distribution, Dodman (2002) proposed a preliminary upper limit of 450,000, based on around <100,000 in Southern Africa (including Angola and Zambia), <100,000 in Eastern Africa, <100,000 in NE Africa, <75,000 in West Africa and <75,000 in Central Africa (Chad, CAR to RDC).

Increases have been noted in Southern Africa, where it has benefitted from commercial agriculture and irrigation (Hockey et al. 2005). Preliminary trend analyses of IWC data suggest a 7% increase.

***Geronticus eremita*, Northern Bald Ibis / Waldrapp**

Population *eremita*, Morocco (breeding)
This population has suffered serious declines and is now restricted as a breeding bird to cliffs of coastal Morocco.

See spreadsheet.

350 – 450

350: Franchimont et al. (2010)
443 post breeding 2013: Northern Bald Ibis blogspot

Since 2005: INC

[Formulate text].

***Plegadis falcinellus*, Glossy Ibis**

Population *falcinellus*, sub-Saharan Africa
Fishpool & Evans (2001) propose a population estimate of C/D for Africa's breeding population. This is a widespread and often gregarious bird, found in a variety of wetlands, including large floodplains. In West Africa, it is found largely in the Sahel zone, where this population is augmented by non-breeding visitors from Europe. Breeding is recorded in Mauritania and Mali (Borrow & Demey 2001). A roost of 12,000 glossy ibis (population unknown) was present at Dentaka in Mali's Inner Niger Delta in January 1999 (Kamp & Diallo1999). 1463 were recorded in the AfWC in East Africa and 1228 in Southern Africa in January 1998 (Dodman *et al.* 1999), whilst 2069 were recorded in Tanzania in January 1995 (Dodman & Taylor 1995); Baker (1997) estimated a maximum population in Tanzania of 5,000 birds; however, over 20,000 were counted during the January 2005 waterbird counts (IWC database).

However, by far and away the most substantial estimate is one of 1,695,240 from the Sudd of southern Sudan (RES 1983). This automatically indicates a much larger population than other reports would indicate, even allowing for the fact that this count may contain birds from other populations. On the basis of this, Dodman (2002) proposed an estimate of 1,000,000-2,000,000 birds, noting that this would warrant revision if surveys of the Sudd could be undertaken again. Since then, some limited aerial surveys have been undertaken; only 7 birds were observed in the core area of the Sudd in April 2012 (Ref.?). The high figure obtained by RES (1983) was for the early dry season (approx. December), and they considered that Glossy Ibises in the Sudd were probably of Palearctic origin / possibly intra-African. Relatively few flocks of ibises were recorded, ie observations of Glossy Ibis were not evenly or widely distributed across the Sudd, rather restricted to seven larger groupings and a number of lesser groups, mostly west of the core swamp area. It seems likely that broad extrapolation methods across the whole Sudd area were used for birds with a clumped distribution, resulting in an artificially high estimate. No methods, however, are provided in Range Ecology Survey (1983), but they do note clearly that these were preliminary surveys not designed for birds and should be taken as ain indicative first step. It is also noteworthy that Nikolaus (1987) considered Glossy Ibis to be uncommon, but locally common during passage, with heavy autumn passage along, and east of, the Nile attributed to Palearctic migrants, with ringing recoveries from the Caspian Sea. In summary, the high estimate of RES

(1983) is likely to be an over-estimate, with no other comparable estimates before or since, whilst, if it were to be used, it could apply to Palearctic-breeding populations as opposed to the African population.

The highest counts recorded in Ethiopia are of flocks between 250 and 600 birdsat dried out inundation areas in the Danakil desert in January/February one year, October another, though they are mostly seen singly or in twos (Ash & Atkins 2009). In Kenya it is rather local in inland swamps and coastal brackish lagoons (Lewis & Pomeroy 1989). Glossy Ibis tended to be a visitor to Uganda during the northern winter, but has increased in recent years and occurs during all months in small numbers around Lake Victoria (Carswell et al. 2005).

In West Africa, this ibis tends to be recorded in low to mid hundreds for the coastal zone of Western Africa during the January waterbird counts (IWC database). It is more numerous inland, with maximum estimates or counts the Inner Niger Delta of up to 35,000 in 1981 and 25,800 in 1984, of 2,447 for the Hadejia-Nguru wetlands of northern Nigeria, of 1,683 for the Logone floodplain system, of 23,000 during Lake Chad aerial surveys in December 1999 and of 4,154 for Lac Fitri (Zwarts et al. 2009). Intermittent breeding does occur in the Inner Niger Delta, eg 150 pairs in 1994-95, but this bird is essentially a visitor from the Palearctic, with around 30,000 – 40,000 birds wintering in 2000. The number of breeding birds in Western Africa is likely significantly lower than this.

There are limited records of Glossy Ibis from DRC; Chapin (1932) reported it only from Lake Edward; Lippens & Wilmé (1976) also noted it from Eastern DR Congo in low numbers, always during the northern winter.

Glossy Ibis is usually scarce in Zambia, but thousands have been recorded on the Kafue Flats, and hundreds in the Liuwa Plains, with most records between February and April (Dowsett et al. 2008). It is resident in Malawi and occurs year-round at Lake Chilwa in varying numbers, although nearly 5,000 ibises were apparently shot here in 1998-99 (Dowsett & Dowsett-Lemaire 2006). Parker (1994) estimated 2,000 in southern Mozambique. This species has increased its range and population size in South Africa where it was first recorded in 1950, benefitting from artificial wetlands; there were over 500 pairs in the 1970s (Hockey et al. 2005). Increases were also observed in Zimbabwe (Irwin 1982) and in parts of Malawi (Dowsett & Dowsett-Lemaire 2006). Birds from South Africa most likely move north to the tropics during the austral winter, eg the Gauteng summer population of 1,800 – 2,000 birds drops to about 400 birds in winter (Hockey et al. 2005). It breeds in small numbers in Botswana, where the largest group recorded is of 1,286 in July 2004 on the Chobe River (Tyler 2011). There are also small breeding colonies in Angola (Pinto 1983).

The movements of this population are not well understood, but certainly it moves according to rains and local conditions.

In attempting to revise this estimate, the following is suggested:

West & Central Africa:	<5,000
Eastern Africa:	30,000 – 50,000
Southern Africa:	5,000 – 20,000

This gives an approximate estimate of 40,000 – 75,000 birds.

Provisional trend analyses of IWC data suggests a 5% increase over a 14 year period. Certainly, increases have been noted in Southern Africa, so this trend is appropriate, though it may not be the case across Africa.

***Platalea leucorodia*, White / Eurasian Spoonbill**

Overdijk & Zwart (in prep.) provide up-to-date information from a Eurosite workshop held in May 2002 in The Netherlands, the results from which will be documented in due course:

Population *leucorodia*, East Atlantic (breeding)
Breeding populations constitute:

Netherlands:	1400
Germany:	75
France:	90
Denmark:	10
Spain:	1700
Portugal:	25
Morocco:	15
TOTAL =	3315 breeding pairs x 3 = 9,945 individuals.

Trend: Increasing.

Population *leucorodia*, Central & SE Europe (breeding)

Breeding populations constitute:

Hungary:	800
Austria:	40
Croatia:	90
Rumania:	140
Former Yugoslavia:	100
Greece:	150
Turkey:	2000
Ukraine:	500
Italy:	70
TOTAL =	3890 pairs x 3 = 11,670 individuals.
Trend:	Decreasing

Population *balsaci*, Coastal Mauritania

This is well known, with a stable population of 6,000-7,000 individuals, breeding in Mauritania's Banc d'Arguin and dispersing locally to neighbouring countries. The size of the breeding population was estimated at 2,185 pairs in 2000 (Overdijk *et al.*, 2002), though one colony was missed, and a population close to 7,000 is thus likely. Overdijk *et al.* (2002) also report that a low percentage (< 2%) of juveniles was found, in contrast to 12% of juveniles in the Eurasian Spoonbill population. This low number of juveniles in the Mauritanian population could be due to a poor breeding season but it could also be that juveniles migrate to other wetlands further north or south. Trend is given as stable.

SEE TABLE FOR UPDATES

Population *archeri*, Red Sea

This population occurs in coastal Africa in the Red Sea, including Eritrea's Dehalak Archipelago and offshore islands (Coulthard 2001). 11 were seen by Zinner (2001) from 2 sites in Eritrea. S. Newton (*in litt.*) estimates the population to number some 500 pairs or 1,250 individuals, based on 200 pairs in Saudi Arabia, 200 pairs along the Red Sea African coast and 100 pairs in Yemen. This new population estimate is adopted here.

PERSGA:

	Pairs
Sudan:	200-500
Saudi Arabia:	103 +28
Egypt:	30-50
Djibouti:	4
Yemen:	15+18
Eritrea:	100?
Somalia:	100?
Total:	600-900 = 1500-2250

SEE TABLE FOR UPDATES

***Platalea alba*, African Spoonbill**

There is one population, which occurs widely in sub-Saharan Africa from Senegal in the West to Somalia in the East and down to Southern Africa, also occurring in Madagascar. There may be justification in the future to assign the Madagascar birds to a separate population. There are quite high counts from various countries, e.g. 701 from West Africa (including Cameroon) in January 1997 (Dodman *et al.* 1997), 4021 from Tanzania and 413 from Kenya in January 1995 (Dodman & Taylor 1995), 589 from Zambia in January 1998 (Dodman *et al.* 1999) and 401 from the Manambolomaty wetland complex of Madagascar (ZICOMA 2001). Dinesen (in prep.) reports of recently-discovered breeding colonies in central Tanzania, where two colonies comprising 520 and 140 nests were discovered in the Bahi Swamp, with a further 440 spoonbills estimated at Lake Kitangiri, about 240 km to the north-west (where nesting could not be ruled out). 250 pairs bred in 1962 (Stronach 1968) in the Wembere swamp, which is part of the same wetland ecosystem.

This species occurs at most major wetlands in Zambia, and breeding has been recorded in three areas, including some 30 nests in Liuwa and 100 nests at Lochinvar in the Kafue Flats and 700 estimated to occur across these flats in 1994 (Dowsett et al. 2008). Numbers are lower in Malawi, where it is regular year-round, with breeding only reported from Lake Chilwa (Dowsett & Dowsett-Lemaire 2006). Numbers fluctuate in southern Mozambique from 100 – 1,000 (Parker 1994), whilst there are probably around 200 in central Mozambique (Parker 2005). There are probably low thousands across South Africa, where just over 2,000 were recorded in January waterbird counts of 2005. It breeds in Botswana at several sites, notably at Nata Delta, where there may be up to 100 pairs (Tyler et al. 2011). It is a widespread resident in Angola, where it also breeds (Dean 2000).

In DR Congo, it only seems to occur in the east, where limited breeding has been recorded (Lippens & Wilmé 1976). In Chad, 1,524 were counted at Lac Fitri in January 2006 (IWC database).

Waterbird counts are generally in the low hundreds from Western Africa, notably from the Senegal Delta. The highest counts from the coastal zone are of 540 at Diawling, Mauritania in January 2013 and 619 at Laibeh Niara in The Gambia in February 2014. Inland, the maximum count in the Inner Niger Delta is of 900, whilst there have been up to 304 on the Logone floodplain (Zwarts et al. 2009).

There are a couple of small colonies in Uganda, where this species seems to have increased in recent decades (Carswell et al. 2005). It is rather local in Kenya, where breeding occurs, often alongside Sacred Ibis (Lewis & Pomeroy 1989). Around 1,000 birds are recorded in the annual January waterbird counts. Baker (1997) estimated that there could be 8,000 – 12,000 birds in Tanzania. Its main area of distribution in Ethiopia is in the Rift Valley, but there is little evidence of breeding (Ash & Atkins 2009). It is rather uncommon in Sudan, with one breeding site recorded (Nikolaus 1987).

Rose & Scott (1997) gave an estimate of B based on Byers *et al.* (1995), but Dodman (2002) considered this rather low in light of its wide distribution across Africa and the regular recording of groups in the low hundreds and, less regularly, high hundreds and low thousands. It seems possible to revise this further, especially the lower limit, in light of records and IWC data.

Western:	3,000 – 10,000
Central:	5,000 – 10,000
Eastern:	15,000 – 30,000
Southern:	7,000 – 15,000
Total:	30,000 – 65,000

The population has expanded its breeding range in Southern Africa, due to adaptation to artificial wetlands (Harrison *et al.* 1997), also in Uganda (Carswell et al. 2005). Trend analysis of IWC data suggests a decline from 2003-2012, although the annual variations are rather large. In the absence of more specific information, the population is suggested as stable, in need of verification.

7. Flamingos

***Phoenicopterus ruber*, Greater Flamingo**

Population *roseus*, Western Africa

This population ranges from Mauritania to Guinea. In January 1998, 21,253 were recorded during the IWC, with 18,823 in coastal wetlands of Senegal. The main breeding population is in Mauritania's Banc d'Arguin, where breeding success fluctuates widely (Scott 1999). PNBA (1988) reported 12,940 pairs, which could indicate a population of 38,820 individuals. A count of 118,200 birds from 1980 (given in Robertson 2001) appears to be very high, presumably including many birds from the Western Mediterranean. A high count of 60,936 birds from Senegal and Mauritania (including 54 from Guinea-Bissau) in January 1997 (Dodman & Taylor 1997) suggests that this population is indeed augmented by visiting birds from the Western Mediterranean, as some 30,800 birds were counted in April and June 1996 (Johnson 1998) at the Banc d'Arguin. A count of 524 from Guinea-Bissau in July 1997 (Dodman *et al.* 1999) indicates that this species is quite widespread along the West African Atlantic coast. Breeding data of the 1990s would appear to correlate quite well with the estimate of 40,000 based on Cramp & Simmons (1977). However, the breeding status of this population needs to be monitored, as data from the northern winter period (e.g. coordinated January counts) are confusing due to the influx of birds from further north.

Breeding data of the 2000s supports the estimate provided in WPE5 of 45,000 – 95,000. In 2005 there were 13,000 – 16,600 pairs in the PNBA and 21,000 adults (breeding possible) at Aftout es Saheli. In 2007, 11,500 pairs were at PNBA with 9,400 chicks. Breeding numbers vary between years but increased from 2001 - 2007, with some birds from Spain also breeding here. In February 2008 there were 1,200 + 200 pairs at Aftout, although the nests at Aftout were later abandoned (Diawara et al. 2008). In February 2010 there were about 2,400 pairs at Aftout (Sidaty & Daf 2010). The trend from 2001 to 2007 was an overall increase according to breeding data, but current status is not clear; most likely fluctuating according to changes in annual breeding success.

[reformulate text after consultation re East Atlantic Flyway analyses]

Population *roseus*, Eastern Africa

Kahl (1975) provided a population estimate of 35,000 birds. Important breeding sites are at Lakes Elmenteita and Natron (Zimmerman *et al.* 1996). Maximum numbers at several Rift Valley lakes are often close to 10,000 (e.g. Bennun & Njoroge 1999), whilst sub-regional totals in the AfWC are often around the 20,000 mark (AfWC reports 1994-1998). As well as being found in Rift Valley lakes, there are several coastal non-breeding sites, from Eritrea to Somalia, e.g. at Jasiira Lagoon (Robertson 2001) and the Tana River Delta (Bennun & Njoroge 1999) and Mida Creek (Zimmerman *et al.* 1996). However, it is feasible that some coastal birds are visitors from Arabia and SW Asia. Given these wide-ranging records and quite reasonable counts, there appears to be no evidence of current decline in this population, so trend is given here as stable. There may well be inter-relation between this population and the Southern Africa population.

101,518 were recorded in January 1995 in Tanzania, although the count at Lake Eyasi could have been less than the 100,000 birds recorded there (certainly >50,000, whilst in the same year there were counts of 8,098 in the Kenyan Rift Valley and 4,603 in Ethiopia (Baker 1997). It is often difficult to achieve good regional coordination during January waterbird counts, coordination being important for flamingos in East Africa, which are highly mobile and semi-nomadic. However, regional counts of around 75,000 in 2005 (when only 4 were counted in Ethiopia) and around 50,500 in 2006 (none in Ethiopia) indicate that the population must be significantly higher than the 1975 estimate of 35,000. There are always gaps in coverage, so on the basis of these counts a new population estimate is proposed with a range of 80,000 – 120,000.

Population *roseus*, Southern Africa

The Flamingo Specialist Group (2001), in newsletter No. 10, propose a population range estimate of 60,000-82,000, based largely on work carried out by Simmons (various references). The lower figure is the highest non-breeding count of resident birds in the sub-region. The higher figure denotes an increase during the breeding season. This is in approximate agreements with the count of 54,567 birds for the sub-region (Dodman & Taylor 1995), most of which were in Namibia. This new estimate is adopted here for continental Southern Africa. 203 *P. ruber roseus* were counted on nests on Sua Pan, Botswana in January 2002 (Borello *et al.*, 2002). Results from a coordinated flamingo count of 2002 are not yet available, but informal reports appear to indicate that the population may fall within this range. The trend of stable proposed in Rose & Scott (1997) is supported here.

Greater flamingo is also present in Madagascar. The species is certainly present year-round here, as evidenced by counts of 747 in July 1997 and 479 in January 1998 (Dodman *et al.* 1999). F. Hawkins (*in litt.*) reports that there has never been any confirmed indication of breeding, though there have been odd nests found. However, there are sometimes very large numbers of juveniles at some periods of the year, but never enough nests to account for them. It seems very likely that the great majority are coming back and forward from Africa. Parker (2001) reports that the Bazarutos Archipelago of coastal Mozambique supports flocks of *P. ruber roseus*, which arrive in the southern midwinter (around June/July), including newly fledged young. Parker (2001) further indicates that the site is an important stopover site for birds from breeding grounds in Botswana, which then disperse along the east coast of Africa. This could presumably include a relatively short hop across the Mozambique Channel to Madagascar. There is a count of 4200 from the Mahavavy Delta wetlands in Madagascar (ZICOMA 2001, date of count not given), and regular records from other sites along Madagascar's west coast.

As this species occurs year-round in Madagascar, it would seem that there is a permanent population here, perhaps constituting at times largely of juveniles. It would seem appropriate to add about 5,000 birds from Madagascar to the population of continental Southern Africa, giving a range of 65,000 to 87,000, the 1% level remaining at 750. If a regular and reliable breeding site is found in Madagascar, the status of this population may need to be revised. There may also be inter-relations between the Southern and Eastern Africa populations of *P. ruber roseus*.

Some of the higher July counts since 2000 are 86,949 in 2013, 78,570 in 2010, 75,030 in 2007, 85,694 in 2004 and 77,606 in 2002, with highest numbers at Sandwich Harbour and Walvis Bay in Namibia. January counts for the region from 2007 – 2014 are:

2007	2008	2009	2010	2011	2012	2013	2014
84,940	67,520	73,277	60,877	57,201	14,316	151,610	93,394

Since 2002, there have been eight January counts of >90,000 birds. Breeding has taken place at: Sua Pan, Botswana, where there were 16,761 pairs (about 50,000 birds) in March 2008 (McCullogh 2001) whilst in the past there were up to 27,000 pairs at Etosha in Namibia (Berry 1972).

These count data indicate that the estimate of 65,000 – 87,000 in WPE5 appears to be too low, and a new population estimate is proposed of 100,000 – 160,000. Despite population declines in the past, the population appears to have been increasing, with some inter-annual fluctuations.

***Phoenicopterus minor*, Lesser Flamingo**

Population *minor*, West Africa

The status of this population is not entirely clear. Whilst most records from January AfWC counts indicate a fairly stable population centred around the Senegal Delta, there are reports of higher counts outside of the main count period, as summarised by Trolliet & Fouquet (2001). Generally, January counts in the Senegal delta produce around 3,000-8,000 *P. minor*, with 11,658 in 1996 (Dodman & Taylor 1996). However, there were unusually high counts of 45,000 and 46,500 in late February 1990 and a further count of 15,000 in late March 1990 (Fouquet 1990, Rodwell *et al.*, 1996). It would seem likely that in 1990 the West African population was augmented by birds from Eastern Africa.

There is confirmation of a regularly important site for *P. minor* in coastal Guinea, Khoni Benki, from where Trolliet & Fouquet (2001) recorded 10,900 in December 2000 during aerial surveys. There is an earlier record of 10,000 from coastal Guinea in January 1988 (Altenburg & van der Kamp (1991), and also recent records of a flock of over 1,000 from Guinea-Bissau (I. Sylla & M. Smart, pers. obs.). Trolliet & Fouquet (2001) suggest that the West Africa population experiences exchanges with one or more of the Eastern or Southern Africa populations, a theory which has generally been out of favour given the suspected (but not proven) breeding status of *P. minor* in West Africa. However, breeding appears to have been proven recently, with immature birds found at Chott Boul, Mauritania in 1998 and 1999 (Hamerlynck & Messaoud 2000). Former breeding records date back to 1965 from Aftout es Saheli (Naurois 1969), where a failed breeding attempt was noted in 1988 (Lamarche 1988).

It is suggested that the population in West Africa is stable around the 15,000 mark, with breeding taking place from time to time in Mauritania, and with local movements between the Senegal Delta, Guinea-Bissau and Guinea, occasionally dispersing to other countries in West Africa, where records tend to be very low. It is also likely that the small resident population is boosted at times by visits from nomadic flocks, presumably from Eastern Africa either via Sahelian Africa or via SW Asia and across to West Africa. There are irregular records from the Gulf of Guinea, which would support theories of at least occasional connection between birds in West Africa and Eastern and/or Southern Africa. These include records from coastal Cameroon, also from the Congo River mouth, where there were 50 in April 1952 and 200 in July 1953 (Mesmaekers 1953). More research is needed, especially to determine the extent and regularity of breeding in Mauritania.

[reformulate text after consultation re East Atlantic Flyway analyses]

Population *minor*, Eastern Africa

There is much interest in the status of this population, which is difficult to quantify accurately, given the logistical requirements needed to survey large flocks in a coordinated manner in different countries, and also due to the difficulty in estimating groups of birds numbering in the hundreds of thousands and more. An estimate of 4,000,000 is provided in Rose & Scott (1997). This is thought to be the upper limit, and it is suggested to provide a lower limit of 2,000,000. Although it is possible the number may be lower than this, results from the AfWC suggest that the population is at least 2 million. Such a range better reflects uncertainty, which is pertinent in this case, given a general lack of consensus in estimating the size of this population. Several efforts have been made to count this population in the past. During the AfWC, there have been a few coordinated counts of some of the most important sites. These have resulted in the following sub-regional counts:

July 1994: 881,624 + 1,798,000 unidentified flamingos
Jan 1995: 1,916,734
July 1996: 206,742 + 2,000,000 unidentified flamingos
Jan 1998: 963,004
Jan 1999: 1,124,375 (excluding Tanzania)

Jan 2005: 657,628 (Tz)

There is most likely to be regular dispersal of birds from Eastern Africa, especially to Southern Africa and West Asia, indicated by irregular very high counts in Southern Africa, e.g. about 1,000,000 in 1971 (Simmons *et al.* 2001), and by regular records from the Arabian peninsula, e.g. 9,160 at Aden Marshes, Yemen in April 1996 (Scott 1999). It is proposed that the birds of the Arabian peninsula form part of the Eastern Africa population, as there are records from Djibouti and Eritrea and from Yemen, just across the Red Sea, and Oman. One site on the Red Sea where this species is regular is at the Seawater Farms, Massawa, Eritrea, from where Tiwari (in prep.) records 110 individuals.

There are few records from Democratic Republic of Congo, including one of 23 at Goma, flying northwards in September 1991; most records are from the Lake Edward area, including an unsuccessful breeding attempt in 1974 by about 1,000 birds and a count of 3,000 in April 1988 (Demey *et al.* 2000). Birds in this area are/were apparently present between January and September/October.

A more conservative population estimate range is thus given of 2,000,000-4,000,000. This does not imply a decline since the former estimate of 4,000,000, but implies uncertainty about the population size. Coordinated partial counts of 2002 and proposals for complete counts in the future may shed additional light on this. The 1% level of 20,000 remains unchanged.

Rose & Scott (1997) give a trend of declining. This may indeed be the case. There have been reports of flamingo die-offs in Eastern Africa, including at Lakes Nakuru and Bogoria (ABC Bulletin 9:1 2002), possibly due to toxic algal blooms. Although quite a large number of flamingos appear to have died, it may still have been a very low proportion of the population. IWC count data inevitably varies considerably between years, as shown in the table below, depending on the count effort and the distribution of flamingos at the time of the counts. This is not always regular, as the population is prone to making irregular, nomadic movements.

693328	1287166	1452654	224496	354391	306201	1260604	522729	42138	99981

[add years]

Population *minor*, Southern Africa

The Rose & Scott (1997) estimate of <1,000,000 was generally agreed to be far too high, as it erroneously took account of visiting birds from Eastern Africa. The much smaller resident population of Southern Africa is occasionally bolstered by large numbers of flamingos, as happened to an unusually high degree in 1971, when 1,000,000 were recorded from Etosha Pan in Namibia (Simmons *et al.* 2001) and in 1974, when there were possibly 1,500,000 at Makgadikgadi Pans in Botswana and a corresponding decrease in lesser flamingos in Eastern Africa (Harrison *et al.* 1997).

The highest reliable count of resident birds is 52,000 in March/April 1999 (Simmons *et al.* 2001). Sub-regional totals recorded in the AfWC are generally less than 50,000, e.g. 40,179 in January 1995 (Dodman & Taylor 1995). Borello *et al.* (2002) counted 16,040 *P. minor* on nests, at least 6,000 chicks in crèches and a further 4,900 adults in the vicinity of the colony at Sua Pan, Botswana in January 2002.

It is also assumed that *P. minor* occurring in Madagascar are a part of this population. This is in need of further investigation, as records in Madagascar appear to be year-round, e.g. 440 at Mahavavy, month not given (Rabarisoa in Dodman *et al.* 1999), 47 in July 1997 and 81 in January 1998 (Dodman *et al.* 1999). It seems possible that there is a separate breeding population in western Madagascar, bolstered by irregular visits from the African continent, but this is purely speculation, and further research is needed. Over 600 pairs nested in northern Zambia at Mweru Wantipa, probably unsuccessfully (Brown 1957). The presence of this record supports views that there may be significant interchange between birds in Southern and Eastern Africa.

Dodman (2002) considered that the population within Southern Africa numbered between 50,000 - 60,000, based largely on Simmons *et al.* (2001), whilst additional counts from Madagascar boosted the total population estimate to about 55,000 - 65,000. The population was thought to be stable, given the relatively consistent nature of AfWC and other counts, although there has never been complete coverage.

UPDATE 2014
Jan: 95136 in Jan 2006. 130978 in Jan 2007. Mainly Sua Pan.
July: 85760 in 2005. 70190 in 2013.
Recent data from Kamfers seems to be missing?

2008. Sua. 10537 pairs Sua; in July 77,491 birds present. McCulloch; check Tyler 2011 for ref)
2008. Etosha. Breeding July. Ca. 50,000 adults (approx. 10,000 chicks).
2008 Kamfers … 9000 chicks.
July 2008: ca. 170000 in 3 sites.
Hockey et al.: 80000 prs in 2000 (ref to McCulloch). But 43000 in Tyler 2011. (=129000)

The estimate of 55,000 – 65,000 thus appears now to be too low, and a new population estimate is proposed of 120,000 – 200,000, with a trend of increasing. The creation of a new breeding site at Kamfers Dam in South Africa may have contributed to enabling the population to increase in size and improve its security.

[update texts according to these info]

8. Ducks & Geese

***Dendrocygna bicolor*, Fulvous Whistling Duck**

Population *bicolor*, Western Africa
This species is much less numerous in West Africa than *D. viduata*, and may be decreasing in some areas (Scott & Rose 1996). Brouwer & Mullié (2001) use extrapolation to estimate a maximum population in Niger of over 35,000 for the period 1994-97, but this is against a minimum population estimate of 202 and a mean population estimate of 9,714 for the same period, so it is difficult to draw any conclusions here. One of the most important sites is the Hadejia-Nguru wetlands, with 9,510 recorded here in January 1998 (Dodman *et al.* 1999). In Northeast Nigeria in the Lake Chad area, Gustafsson *et al.* (in press) found this bird to be most abundant in 2000 in September/October, when flocks of 2,000, 1,000 and 500 were recorded on separate occasions. Otherwise, records in the AfWC counts (AfWC reports 1991-1998) are relatively low west of Nigeria, with no other key sites standing out immediately. However, one of the most important countries for this population appears to be Chad, which does not regularly participate in the AfWC. There are records of 21,000 at Lac Fitri in 1984 and, more recently, 61,029 in 1999 at Lake Chad (Scholte & Robertson 2001). The current population estimate would still appear to be current, and there does not seem to be justification in assigning a declining status.

Trolliet 2011 … gave 10,000 – 20,000 based on 2006 counts.
BUT … over 10,000 in Senegal Delta area in Jan 2014, and 31,694 in northern Nigeria (31,605 at Gashua/Gwayo) in July 2007, whilst there were also 3,920 at Lac Oursi, Burkina Faso in January 2007. Over 100,000 were recorded in Niger in January 2001. High interchange between sites is very possible.
Suggest 20,000 – 50,000, noting the decline mentioned by Triplet 2001.

[update these texts accordingly]

Population *bicolor*, Eastern & Southern Africa
Highest counts in the AfWC are from Zambia, with 58,384 recorded in January 1994 (Taylor 1994) from just one site (Lochinvar). Further south, it is a fairly uncommon species, and is confined largely to NE Southern Africa (Harrison *et al.* 1997). The species may well be overlooked in the Democratic Republic of Congo, where presumably wetlands in the east of this vast country could potentially support high numbers. There is a record of 8775 from Sudan's Sudd swamps, though only 8516 were recorded from East Africa in January 1995 (Dodman & Taylor 1995), when there was a nationwide waterbird census in Tanzania, though in the same year 6,000 were recorded at Nyumba ya Mungu reservoir in Tanzania (Baker & Baker 2001). Baker (2007) estimated 5,000 – 20,000 for Tanzania, with seasonal variance. Dinesen (pers. comm.) estimated about 3,000 birds at Usangu in western Tanzania in June 2001 in a few huge flocks, where it was also found to be very common breeding, with some thousand pairs in March 2002. The migratory or nomadic movements of this population are poorly understood, and numbers seem to fluctuate at different sites. Overall, it is suggested that the population estimate of 200,000-500,000 of Scott & Rose (1996) may be an over-estimate, perhaps based too much on some good records from a limited number of sites. AfWC counts from Zambia have never achieved the totals for this species of 1994, supporting the nomadic nature of this duck, which can be found in

large flocks, but probably only irregularly, with these representing quite high proportions of the population. A more conservative estimate of 150,000-350,000 is proposed, with a 1% level of 2500.

UPDATE: Common to abundant Afrotropical visitor to Ethiopia (Ash & Atkins 2009).
No change. STA was proposed in 2002.

[update texts]

***Dendrocygna viduata,* White-faced Whistling Duck**

Population *viduata*, West Africa
There are high counts for this species from a number of Sahelian wetlands, including Senegal's Djoudj National Park, with 35,700 in January 1998 and Nigeria's Hadejia Nguru wetlands, with 30,053 in January 1998 (Dodman *et al.* 1999), Cameroon's Lake Maga, with 56,000 in 1987 (Fotso *et al.* 2001) and 24,800 from Chad's Lac Fitri (Scholte & Robertson 2001). Away from these large wetlands, the species is well distributed throughout the sub-region. Brouwer & Mullié (2001) suggest that Niger may support around 200,000 seasonally. There is certainly movement of this species within the sub-region, so these figures cannot simply be added. Nevertheless, the current population estimate of 250,000 would appear to be a very minimum number, and instead a population range is proposed of 250,000-500,000, with a 1% level in the mid range (3,750).

Dodman (2006): 600,000 – 700,000: ca. 526,000 counted in Jan 2000 in total, so I agree we need to increase. But I don't think we counted as much as 90% of the population! So, I add: ca. 15% to the total of 526,000 to account for uncovered areas in the main count zone, then 10,000 for southern Senegal - Guinea, 10,000 for Liberia, SL & CdI, 20,000 for the vast uncovered areas of Nigeria (where it's by far the most common resident duck), 5,000 for mid-Cameroon & 10,000 for CAR = 660,000.

Population *viduata*, Eastern & Southern Africa
There is a count of 51,810 from the Sudd of Sudan (Robertson 2001). The species is common and widespread in Kenya and northern Tanzania below 1500m (Zimmerman *et al.* 1996), though only 6744 were counted in January 1995, which included a nationwide survey of Tanzania (Dodman & Taylor 1995). No key sites have so far been identified for this species in Kenya or Tanzania using the current 1% level. Baker (1997) estimated 17,500 – 25,000 in Tanzania. In Southern Africa, the species appears to be more numerous, with 15,230 recorded in July 1997, though there were less than 5,000 in January 1998 (Dodman *et al.* 1999). It is common to abundant in Ethiopia, with flocks of >5,000 counted at Bahadu in January / February (Ash & Atkins 2009).

Estimates / counts from Southern Africa include 6,000 at Lake Liambezi, Caprivi, Namibia in July 2001, possibly >15,000 in southern Mozambique, >3,000 on South Africa's Nyl Floodplain and >3,000 in Swaziland (Hockey et al. 2005). High counts from northern Botswana are of 3,500 at Lake Ngami in July / August 2009 and 9,852 between Kasane and Ngoma in July 2006 (Tyler 2011). Zambia's Kafue Flats support high concentrations, perhaps in the tens of thousands. Whilst there have been range extensions in South Africa (Harrison *et al.* 1997), there do not appear to be particularly large congregations here. In fact, overall, there are far more substantial records in West to northern Central Africa than in Eastern and Southern Africa.

Numbers in IWC are never as high as in West Africa.

Dodman (2002) considered that the population estimate of 1,000,000-2,000,000 of Scott & Rose (1996) was thus a rather large over-estimate and proposed a more conservative population estimate of D i(100,000 – 1 million). This estimate would surely seem to be of the right order, but it should be possible to improve this at least by informed 'guesstimates' based on data and information below. Approximate ranges could be of this order:

Eastern Africa:	300,000 – 400,000
Southern Africa:	200,000 – 300,000
Central-East Africa:	?- 100,000

This gives an estimate of 500,000 – 800,000.

[update text]

***Thalassornis leuconotus*, White-backed Duck**

Population *leuconotus*, West / north Central Africa
This species is indeed scarce in West Africa, where Nigeria's Hadejia Nguru wetlands once supported reasonable numbers. Despite more extensive coverage of the AfWC in recent years, there have been no records of note. There are also records from NW Democratic Republic of Congo, including 3 juveniles collected on separate occasions between 1957 and 1958 in Mongala District, NE Equateur province and 2 observed in 1964 in Ubangi district, NW Equateur province (Demey *et al.* 2000). There is also a potential record from CAR, though Dowsett *et al.* (1999) deleted the species from the country list. There are no recent records apparently from northern Central Africa. Dodman (2002) proposed to revise the population estimate downwards to 1-500 birds.

Population *leuconotus,* Eastern & Southern Africa
This population is faring much better than the other two, with range expansion noted in Southern Africa (Harrison *et al.* 1997). Zimmerman *et al.* (1996) report it as a locally common resident on freshwater lakes and small ponds with abundant emergent vegetation, though N. Baker (*in litt.*) suggests that this habitat is under threat from agricultural expansion. Baker (1997) estimates there to be around 4,000 – 7,000 in Tanzania, with 180 birds on Lake Singida being the largest non-breeding concentration recorded. L. Dinesen (*in litt.*) reports that it is not common on wetlands of western Tanzania. In Democratic Republic of Congo, breeding has been proved in East Kasaï (Van Assche 1954). The South African population has been roughly estimated as in the thousands, with a record of 550 on Tshantetsche Bay in Natal (Hockey et al. 2005), whilst Parker (1999 & 2005) estimated 5,000 to be in southern Mozambique and less than 1,000 in central Mozambique.
Groups of around 20 – 50 bird have been reported from across Zambia, sometimes up to 500 on the Kafue Flats (Dowsett et al. 2008). Concentrations of 300 – 500 birds have been recorded at Kuti Ponds in Malawi the early 1990s, though there are several threats that seem likely to impact this species (Dowsett & Dowsett-Lemaire 2006).

IWC January counts may reach around 1,000 birds for the whole range, with highest numbers usually recorded in Ethiopia, Botswana or South Africa. The current estimate of 10,000 - 25,000 is retained, though it is most likely to be nearer the higher end of this range.

[update text]

***Oxyura leucocephala,* White-headed Duck**

Population *leucocephala*, Spain, (Morocco)
This small population is essentially restricted to Spain, though it used to occur in Morocco also in the non-breeding season. In Spain, the population has increased in recent years, from only 22 birds in 1977 to 665 in 1995 (Scott 2002). Counts of this population increased further in the late 1990s to a maximum of 4,489 in 2000, falling back to 2,678 in 2001 (B. Hughes, *in litt.*). A. Green (*in litt.*) has proposed a new population estimate of 2,000-4,500. Scott (2002) suggests that this population may re-establish a migration route to Morocco, given the current increases in the population.

Population *leucocephala*, E Algeria, Tunisia
This very small population of some 400 birds appears to be stable, after suffering a significant decline in the 1970s (Scott & Rose 1996). There are regular movements between Algeria and Tunisia, with some breeding birds from Algeria visiting Tunisia during the non-breeding season (Scott 2002). In Algeria, the main breeding area is the Lac Kala complex, which comprises several lakes. Some of the key sites for this species in Algeria are given by Coulthard (2001):

Lac Oubeïra:	Winter counts have declined from 220 in January 1984 to <50 in 1995.
Lac Tonga:	28 nests in 1991; non-breeding counts low until a count of 256 birds in 1999
Lac des Oiseaux:	209 non-breeding in 1992; 6 nests in 1991
Marais de Mekhada:	Probably breeds.

In Tunisia, there are also some regular breeding sites, and (northern) winter counts often in the hundreds. Amari & Azafzaf (2001) provide the following site accounts:

Ichkeul:	Probably breeds; winter counts from 12-600
Mlaâbi reservoir:	12-80 pairs suspected to breed

Mornaguia reservoir:	Present throughout year; may breed, but numbers highest in 'late summer and autumn', suggesting through-passage; counts of 12-220 birds
Sidi Abdelmonem reservoir:	One of the best sites for nesting, with some 15-80 pairs resident
Masri reservoir:	10-50 pairs
Sebkhet Kelbia:	A non-breeding site, 5-40 birds
El Houareb reservoir:	An important breeding site; winter counts of up to 334
Sebkhet Sidi Mansour:	40-80 birds in winter

In addition to these sites, H. Azafzaf (*in litt.*) counted 131at Oued Rmal Reservoir (Tunisia) in September 2002.

Whilst the population estimate of 400 would appear to be in the right order, it is felt that a range is more appropriate, given the suspected breeding data above. A new population estimate is thus proposed of 400-600, with a mid-point 1% level of 5.

2014: TRIM suggest increase.

[update text]

***Oxyura maccoa*, Maccoa Duck**

[Population *maccoa*, Ethiopian Highlands
Urban & Brown (1971) reported that this bird was common to locally abundant in Ethiopia, but uncommon at larger freshwater lakes/rivers. 51 were recorded at Lake Abijatta in January 1996 (Dodman & Taylor 1996) and 200 here in January 1998, with a further 102 at Green Lake and 47 from other sites (Dodman *et al.* 1999). There are several other records from different sites in the Ethiopian highlands, such as Lakes Hora and Chelekleka (Farnsworth *et al.* 2000). This population also reaches highland areas of Eritrea, where a single male was seen on two occasions in the late 1990s (Zinner 2001). There is thus a picture of a fairly widespread but probably declining population resident on scattered lakes in the Ethiopian highlands as far north as highland areas of Eritrea, with Lake Abijatta surely supporting the largest numbers. An estimate of 500-3,000 is proposed, with status declining, in common with other lake specialists, such as *Podiceps cristatus*, which all seem to be affected by more widespread gill net use in the sub-region. A probable record of *O. jamaicensis* from Eritrea in 1995 is cause for concern (Dodman & Taylor 1995).]

Population *maccoa*, Eastern Africa
Zimmerman *et al.* (1996) report this to be a rather uncommon and local resident on alkaline and freshwater lakes in the Kenyan Rift Valley and central highlands, common at times in Arusha National Park and on lakes in the Crater Highlands. There are records of 170 at Lake Oloidien in January 1994 and 1997, though there are no recent records from Lake Nakuru (Bennun & Njoroge 1999). 427 were recorded at Momela Lakes in Arusha, Tanzania in January 1995, where it also breeds in the site's small, secluded freshwater ponds and swamps (Baker & Baker 2001). 81 were recorded at the same site in July 1996, whilst in January 1997 there were 168 from a number of sites in Kenya (Dodman *et al.* 1997). Baker (1997) suggests that numbers in Tanzania (essentially Arusha) have halved from about 1,000 (Beesley 1972) to 500. N. Baker (*in litt.*) suggests that further recent declines are likely in Tanzania, and also provides some unpublished more recent counts of around 700 in Kenya and 82 at Naivasha. There are past records from Rwanda and Kivu Province of the Democratic Republic of Congo, but no recent ones (Van Gasse, *in litt.*); a few may feasibly remain in these highlands of the Albertine Rift.

The current population estimate of 15,000-25,000 (Scott & Rose 1996) thus seems highly exaggerated. There are likely to be no more than 500 in Tanzania and perhaps 1,000 in Kenya, where there is a more scattered distribution. A new population estimate of 1,000-1,500 is proposed, in agreement with Baker (*in litt.*).

2014: 379 Kenya Jan 2009 (Lakes Oloiden 176 & Sonachi 126).

SEE SPREADHSEET. Berruti et al. (2007). [update text]

Population *maccoa*, Southern Africa
Harebottle (pers. comm.) suggests the population is less than 10,000, based on AfWC data and its rather sparse distribution. Indeed, AfWC records sub-regional totals tend to number between about 300 and 500 (AfWC reports 1995-1998), with Botswana usually producing the highest numbers. It is possibly increasing in

some areas, especially where there are new reservoirs and dams. A revised population estimate of A is proposed, based on the general paucity of records of this readily recognisable duck, but the trend of increasing is retained, suggesting that Scott & Rose's (1996) earlier estimate of 15,000-25,000 was too high.

SEE SPREADSHEET TRIM TREND DECLINE. Berruti et al. (2007). [update text]

***Alopochen aegyptiacus,* Egyptian Goose**

Population *aegyptiacus*, Western Africa
Numbers do not tend to be high in the AfWC (AfWC reports), with Mali and Senegal tending to be strongholds in the sub-region. There are probably a few thousand birds in the Senegal Delta, but elsewhere in Senegambia this is a rare species (Barlow *et al.* 1997). Brouwer & Mullié (2001) provide an average population estimate for Niger from 1994-97 of just under 4000, suggesting the species may be in decline. Scott & Rose (1996) also report likely declines in The Gambia and Nigeria and proposed a population estimate of 10,000 -25,000. Dodman (2002) recommended a declining trend on the basis of a general paucity of records in the AfWC since WPE2 and on the suggested declining status in at least three countries.

A low range and continued decline was later proposed by Trolliet (in litt. 2006), who considered the population could be as low as 5,000. However, Dodman (2006) noted that there were about 4,000 counted during the AfWC of January 2000 in Western Africa, and considered that 5,000 could be too low, as this bird has quite a wide range outwith the major Sahelian wetland zone, and added an upper limit of 10,000.

UPDATE 2014: Highest count in 2000 was of 2,792 from Niger, from sites were counts seem to be irregular. In the Senegal Valley, there were 1,165 in 2013 at Diawling in Mauritania. Current estimate and trend seem appropriate. [update text]

Population *aegyptiacus,* Eastern & Southern Africa
This population is much more numerous than in Western Africa, and is likely to be stable, based on Callaghan *et al.* (in prep.) and on past increases in Southern Africa, which seem to have stabilised (Scott 1999). The species is recorded regularly and widely in Southern Africa during AfWC counts (AfWC reports), and Harrison *et al.* (1997) report of some 30,000 on South Africa's Transvaal in the 1980s. In Eastern Africa, this goose is common and widespread in Kenya and northern Tanzania (Zimmerman *et al.* 1996), with several sites supporting good numbers in Ethiopia, e.g. 1,464 at Lake Awassa (Ethiopian Wildlife & Natural History Society 2001), whilst Baker (1997) estimated 7,000 to 12,000 to occur in Tanzania, perhaps more seasonally. AfWC records tend not to be as high in Eastern Africa as in Southern Africa. Scott & Rose (1996) proposed a population estimate of 200,000 – 500,000, whilst Dodman (2002) considered the population to be stable overall.

UPDATE: IWC counts (January and July) in South Africa IWC are much lower from 2010-2013 than in previous years. TREND in TRIM DECLINE (-3.22% 03-12; -1.36% 98-12. [update text]

***Tadorna ferruginea*, Ruddy Shelduck**

[Population *ferruginea,* Ethiopia
This small resident population is given as uncommon to rare on tarns and marshes up to 3,700m by Urban & Brown (1971). Although migratory *T. ferruginea* pass through Ethiopia, a small breeding population is found on the Sanetti Plateau in the Bale Mountains (Urban *et al.* 1982). This unique population may be in decline, as the Ethiopian Wildlife & Natural History Society (2001) estimates this breeding population to number between 30 and 80 birds. Farnsworth *et al.* (2000) document a range of records, mostly of small numbers only, in the Bale Mountains area.]

Population *ferruginea,* North West Africa
No changes proposed to the current population estimate of 3000 and trend of declining.
CHECK NEW REFS

Population *ferruginea*, E Mediterranean, Black Sea, NE Africa
No changes proposed to the current population estimate of 20,000 and trend of declining.

Thévenot et al. (2003) considered that the winter population is likely to be over 2,000 birds; breeding is widespread and numbers in past (1960s) may have been around 1,000 pairs in the Middle Atlas and a few hundred pairs in Saharan Morocco. Green et al. (2002) estimated the population in Morocco at around 3,000 birds. This species also occurs in Algeria, where it was considered abundant in the south in the past but

recent records are very few (Isenmann & Moali 2000). It is a resident breeder in south Tunisia, where it is regularly present in small numbers all year round (Isenmann et al. 2005).

[update text]

***Tadorna cana,* Cape/South African Shelduck**

There is one population *cana*, endemic to Southern Africa. The estimate of 42,000 of Scott & Rose (1996) is based largely on data from South Africa. Harebottle (*in litt.*) suggests that this may have increased to 50,000 on account of range expansion due to dams, as reported in Harrison *et al.* (1997). This species has a fairly wide distribution in the sub-region, including in Zimbabwe, Namibia and Botswana, where Tyler (2001) suggests there are <100. The estimate of 50,000 is supported, and a new 1% threshold proposed of 500.

IWC counts: Mostly in SA. 13,089 Jan 2013 is highest; much lower since (coverage issues?). Significant decline apparent from counts, by 10.4% between 2003 and 2012.

Hockey et al. (2005): Past records (1970s) detail around 30,000 birds at 23 known moult localities in South Africa. [update text]

***Plectropterus gambensis*, Spur-winged goose**

Population *gambensis*, Western Africa
This species is widespread in West Africa, with 13,647 recorded from 8 countries in January 1997 (Dodman *et al.* 1997), and 7,373 being recorded from 7 countries of the sub-region in January 1998, with a further 2,485 in the Waza Logone of Cameroon (Dodman *et al.* 1999), though there are higher numbers recorded in Cameroon, e.g. 5,000 on the Logone Floodplain and 22,000 at Lake Maga in 1987. Flocks of up to 1,000+ were recorded in Northeast Nigeria in the Lake Chad area in 2000 (Gustafsson *et al.*, in press). Brouwer & Mullié (2001) suggest an average population estimate of around 6,000 for Niger, which they suspect to be increasing. 11,000 were recorded from the core area of the Inner Niger Delta in Mali in 2000 (Robertson 2001) [FIND BETTER REF.]. This species is also common to abundant in inland divisions of The Gambia during and after the rains and is widespread in Senegal (Barlow *et al.* 1997), where it is especially regular at Niokolo-Koba National Park (pers. obs.). This species also occurs in Central Africa, e.g. 24 in the January 1998 AfWC from Lac Télé of inland Congo (Dodman *et al.* 1999), which presumably form part of this population. Given the extensive potential habitat for this species in northern areas of Central Africa, and considering the numbers of diverse records above, a new population estimate is proposed of 100,000. The status has also been changed to stable, reflecting the apparently healthy nature of this population. The seasonal movements of this population are poorly understood.

IWC: 18,294 in Jan. 2006, including 6,557 in Cameroon, 14,333 in West / Central Africa in Jan. 2009, including 8,474 in Burkina Faso. 6,268 in Mali and 3,312 in Chad. 8,354 at Djoudj, Jan 2014.

Decline in core zone of Inner Niger Delta of about 18% from 1992 – 2007 (Zwarts et al. 2009).

NB V. high count in 2007 H-N in IWC database … check.

Population *gambensis*, Eastern Africa south to Zambia
This is a widespread population occurring from Sudan to Zambia. In the Sudd swamps, there is a record of 150,216 (Robertson 2001), though numbers in the AfWC in Eastern Africa tend not to be high, e.g. around 1300 in both January 1997 and 1998, and only 1420 in 1995, which included a nationwide census in Tanzania (AfWC reports). Baker (1997) estimated 5,000 – 15,000 to occur in Tanzania. 5,400 have been recorded at Tana River delta in the flood season (Bennun & Njoroge 1999). The species is common in floodplain areas of Zambia, notably the Barotse Floodplain (3750+), Kafue Flats (4113 in July 1994) and the Bangweulu Swamps (3750), all summarised in Leonard (2001). The current population estimate is thus supported here, as is the trend of stable.

TEXT NOT UPDATED

Population *niger*, Southern Africa
This is a common resident in Southern Africa, excluding the drier central and western areas of the sub-region. The current population estimate of 50,000-100,000, which is backed up by more recent information in Scott (1999) and Harrison *et al.* (1997) is supported here.

POPN TEXT NOT UPDATED

Population seemed to have increased in past, but IWC TRIM suggests declines of 5.7 % (1988 -2012) and 3.3% (2003-2012). Threats given by Hockey et al. (2005) however consider that any negative effect resulting from loss of natural wetlands is offset by increase in dams.

***Sarkidiornis melanotos*, Comb / Knob-billed Duck**

Population *melanotos,* Western Africa
7,668 were recorded from 8 countries in January 1998 (Dodman *et al.* 1999), and 5,025 in Chad in 1999 (Scholte & Robertson 2001). This species is a dry season visitor to The Gambia, where numbers are reduced from earlier in the 20th century; it is widely distributed in appropriate habitat throughout Senegal. Brouwer & Mullié (2001) proposed an average population estimate for Niger of just over 35,000, suggesting that (if their estimate is reliable) the West Africa population estimate of 50,000 (Scott & Rose 1996) was too low or that Niger was a significant stronghold. In Niger, Ayorou (7,654 in January 1995), Namga and W are identified as key sites, as are Lac d'Aleg and Lac Mal of Mauritania and the Hadejia-Nguru wetlands of Nigeria (AfWC reports 1995-97). Over 1,000 were recorded in Northeast Nigeria at Lake Chad in February 2000 (Gustafsson *et al.*, in press), whilst 3,125 were counted at Dagona in January 2013 (IWC database).

Dodman (2002) proposed a population estimate of 50,000-100,000, based on information and count data. However, more recently, B. Trolliet (in litt. 2012) suggests that the population maximum should be revised to 40,000 or even more likely to 20,000 individuals. Zwarts et al. (2009) suggest a declining trend of around 40% in the central area of the Inner Niger Delta between 1992 and 2007, noting a count of 9,124 birds in 1994, around ten times higher than the next highest counts in the 900s. With counts from several sites numbering in the low thousands and a wide range away from the Sahelian 'mega-sites', this estimate may be rather conservative, but it a good benchmark for future monitoring.

The seasonal movements of this species are not well known.

Population *melanotos,* Southern & Eastern Africa
Only 1315 birds were recorded in January 1995, when Tanzania also held its nationwide census (Dodman & Taylor 1995). Zimmerman *et al.* (1996) report of fluctuating numbers in Kenya and northern Tanzania, though the species is widespread here. N. Baker (*in litt.*) reports of low thousands from Tanzania's Yaida Chini, whilst Baker (2007) gives an estimate for Tanzania of 2,300 – 5,000 birds. There is a record of 9611 from the Sudd (Range Ecology Survey 1983). 20,698 were at Zambia's Kafue Flats in January 1994 (Leonard 2001) and 8,000 at Usangu, western Tanzania in June 2001 (Dinesen, pers. comm.). Common to locally very common in Ethiopia (Ash & Atkins 2005). Lewis & Pomeroy (1989) indicate that it is usually only found in small flocks in Kenya, and suggest that there may be a relatively small, possibly resident breeding population that is regularly augmented by trans-equatorial migrants.

In Southern Africa it is seasonally common, generally being a southern summer visitor. 3146 were recorded in the AfWC of July 1998 in Southern Africa, but these were mostly from Zambia. 2,395 birds were killed in the rains of 1998-99 at Lake Chilwa, Malawi (Dowsett & Dowsett-Lemaire 2006). Numbers in Zambia are highest during the rains (Dowsett et al. 2008). Overall, there appear to be very few high counts, with Zambia perhaps holding the greatest numbers. 3,000 in southern Mozambique (Parker 1999).

Scott & Rose (1996) proposed a population estimate of 500,000 – 1,000,000. However, Dodman (2002) suggested that a much more conservative population estimate be used of 100,000 - 500,000, noting that AfWC counts in Eastern Africa are consistently low, and combined totals for Southern and Eastern Africa invariably lower than those for West Africa.

2014 estimate:

NE Africa:	20,000 - 50,000
E Africa:	10,000 - 50,000
C S Africa:	10,000 - 100,000
S Africa:	10,000 - 50,000
Total:	50,000 - 250,000

Numbers in Southern Africa probably increased in past decades due to an increase in artificial wetlands (Hockey et al. 2005).

***Nettapus auritus*, African Pygmy Goose**

Population *auritus,* Western Africa
There are very few recent records of this species in West Africa, apart from its regular occurrence at Lagoa da Cufada in Guinea Bissau, e.g. 135 in July 1997. Very small numbers exist in Senegal's Djoudj National park, where 8 were recorded in January 1998 and in Nigeria's Hadejia Nguru wetlands, where 8 were also recorded in January 1998 (Dodman *et al.* 1999) and at a few localities in between. 161 were recorded at Cameroon's Waza Logone in the same year. It was rarely observed in far Northeast Nigeria, when a maximum of 4 birds was recorded in nine sightings in August and September 2000 (Gustafsson *et al.*, in press). Borrow & Demey (2001) provide a record of a vagrant bird on São Tomé in July 1999. This species certainly moves within the sub-region, but these movements are poorly understood. This species is also regularly recorded in small numbers from Lac Télé of The Congo (e.g. 10 in July 1997 and 10 also in January 1998). This opens the door to a wider occurrence than perhaps previously thought in the Congo Basin. Dodman (2002) suggested that the population was <10,000 in West Africa, mentioning that the status of birds in Central Africa was in need of further investigation.

A coordinated count of coastal wetlands of Africa's western coast resulted in 471 birds, including over 200 in the Senegal Delta and environs, 120 at Lac Cufada in Guinea-Bissau and 89 at coastal wetlands of DR Congo. It would be realistic to assume that there at least 2,500 birds in the region, with >500 between Mauritania and Guinea-Bissau, >500 in the Chad Basin, >500 in tropical Central Africa and >1000 elsewhere. 660 recorded in the Inner Niger Delta in January 1995. Seems to be increasing in the Senegal Delta.

Population *auritus*, Southern & Eastern Africa
2002: Happily, *N. auritus* seems to fare better here than in Western Africa, with reasonable numbers at scattered sites, such as Botswana's Okavango Delta and lakes of Ethiopia and Uganda.

2014: Baker (1997) estimated 3,000 – 5,000 in Tanzania. Lewis & Pomeroy (1989) consider it a rather local and in most areas an uncommon and occasional wanderer. It is also very local in Ethiopia (Ash & Atkins 2005). Transects on the Kafue Flats suggested a population there of 10,000 – 15,000 birds (Dowsett 1978), although numbers recorded in January / July counts have invariably been low (often zero); an exception was of 1,464 in July 2012 and 1,004 in January 2013 (IWC database). Douthwaite (1980) estimated there to be 5,000 – 15,000 in the Okavango Delta in the late 1970s. It is considered rare in South Africa, and only common on Lake St. Lucia and the Pongola Floodplain system (Barnes 2000).

It is not very common in Katanga, where it is almost always seem in pairs (Louette & Hasson 2011).

East:	10,000 – 50,000
C Sthn:	45,000 – 200,000
Sthn.:	5,000 – 50,000
Total	50,000 – 300,000

[NB add Douthwaite Zam & Bots duck papers to ref list. update text]

[Population *auritus*, Madagascar
The population estimate of 5,000-10,000 is supported here. There are counts of 293 and 193 from July 1997 and January 1998 respectively (Dodman *et al.* 1999). In the absence of supporting information, no changes are proposed as yet.]

***Anas capensis*, Cape Teal**

Population *capensis*, Eastern Africa Rift Valley
In Eastern Africa this is a species of alkaline and brackish lakes and ponds of the Rift Valley, with records of low numbers from Ethiopia, Kenya and Tanzania. In reviewing the status and distribution of this population, N. Baker (in press) considers the population estimate of Scott and Rose (1996) of 100,000 to 250,000 to be very high, suggesting instead a population estimate of 4,750-6,000, based on ranges of 250-500 for Ethiopia, 3,000-3,500 for Kenya, and 1,500-2,000 for Tanzania. N. Baker (in press) also summarises all past records in the sub-region from recent years, with maximum counts being 1,165 in Tanzania (1995), 2,792 in Kenya (1997) and 181 in Ethiopia (1998).

Bennun & Njoroge (1999) report that *A. capensis* breeds on Lake Magadi, and is also common at Lake Bogoria. There were 2,195 in Kenya in January 1998 (Dodman *et al.* 1999). Dinesen (in litt.) reports of a pair with young in southern Lake Natron, Tanzania.

Syvertsen (1998, *in litt.*) summarises records in Ethiopia, where 181 were recorded in January 1998 (Dodman *et al.* 1999), of which 104 were in Lake Abijatta. All records were from the Rift (Green Lake, Koka dam and Lake Abijatta), which are all alkaline (Koka less so). In the 1997 AfWC, 162 were recorded from Ethiopia, all or mostly from Lake Abijatta. These figures are somewhat higher than during any previous count since December 1990 (Dec 1990: 23; Jan 1992: 38; Jan 1993: 10; Nov 1993 - Jan 1994: 87; Jan-Feb 1995: 81; Jan-Feb 1996: 33). Abijatta is a shallow, alkaline lake, and the only locality where *A. capensis* is seen regularly in Ethiopia, where it is wholly or largely confined to such lakes. Other potential overlooked sites include Lakes Shalla, Langano and Chew Bahr, plus lakes in the southern Danakil region, as well as smaller lakes.

Scott (1999) opts for an estimate of A/B (i.e. < 25,000) for Eastern Africa and the Lake Chad Basin, especially due to generally low coverage in the AfWC. It is true that there are some significant gaps in coverage of potential sites, especially in Ethiopia, and the estimate of N. Baker (in press), whilst very possibly correct, perhaps does not adequately account for this. There are remote areas in the Rift Valley where small breeding groups could potentially exist, especially considering the isolated records from oases in Libya and Sudan (see below). However, the upper limit of B (25,000) is also felt to be too high, and a new population estimate of 5,000-10,000 is thus proposed, based on n. Baker (in press) and accounting for gaps in AfWC coverage. This results in a mid-point 1% level of 75.

Although it is possible this population is in decline, especially when comparing this new population estimate with the previous one, Scott (1999) suggests that with a lack of historical data there is no evidence to support this. However, a number of other Rift Valley species do appear to be in decline, such as *Podiceps cristatus* and *Oxyura maccoa*, and there are records of this bird being 'common' in the 1980s (summarised in Scott (1999)), so it would appear that some measure of decline is underway.

The review of Baker (2003) raises some useful questions and highlights the conservation status of this population. Hopefully further information will come to light in coming years to provide a more definite picture, especially on the status of this population in Ethiopia.
UPDATE WITH BAKER'S SCOPUS PAPER & IWC COUNTS
IWC: January 2005. 4,355 in Kenya and Tanzania, including 1,501 at Lake Bogoria and 1,159 at Lake Oloiden
Recent record in Khartoum (2014)
TRIM: 1988 – 2012: 17.0% decline (+/-15.9%), but uncertain / high SE.

Population *capensis*, Lake Chad Basin
Baker (in press) suggests that the birds found in the Lake Chad Basin represent a small but discrete population. Other authors believe it is a component of the East African Rift Valley population, and there have also been suggestions that birds here are visitors from Southern Africa. After seeking information from various sources, it is suggested to define the Cape teal of West Africa as a small separate population centred on Lake Chad. Although the Cape teal may be a rather dispersive species at times, for instance with records of vagrants from Ghana, there is no conclusive evidence to suggest that birds are migrating here from Eastern Africa.

There are isolated records from southern Libya and Western Sudan. Cramp & Condor (1970) located two pairs at Kufra oasis, southeast Libya in April 1968, when breeding was suspected. There are also historical records from the Jebel Marra area of Darfur, Sudan, where Baker (in press) considers it was only ever a breeding visitor in very small numbers. Indeed, these records suggest that the Cape teal may have been more widespread at scattered oases in the Sahel and Sahara. Its continued survival in such remote areas cannot be ruled out.

However, most records are from the Lake Chad Basin. The records of Hall (1976) of flocks of 10, 20 and 50 from the Bulatura Oases in northeast Nigeria from February 1976, September 1973 and December 1975 respectively strongly suggest a fully resident population. Gustafsson *et al.* (in press) also consider it an uncommon resident in the far Northeast corner of Nigeria.

Perhaps the largest count is of flocks of up to 300 from Lake Chad (Viellard 1972). Baker (in press) summarises subsequent maximum counts of 60 in Chad and 80 in Nigeria, and suggests a population estimate of <500. There are few recent records, though Gustafsson *et al.* (in press) made two observations, one of 20 birds on 24th August 2000 and one of 10 birds on 11th September 2000. Thus, this appears to be a small declining population found in secluded areas of Lake Chad and oases of the Lake Chad Basin.

Lake Chad has undergone many changes in the past decades, including fluctuations in surface area, salinity and degrees of utilisation. Such changes may have contributed to the decline of this small population. Although the lake is large enough for this species to be over-looked, the general absence of records suggests

indeed that the population is <500, so this estimate is adopted, with a 1% threshold of 5. Although the population may possibly be stable now, there is enough evidence to suggest that is has been in decline since the 1970s, perhaps earlier, so a trend of declining is proposed.

[UPDATE WITH BAKER (2003). ADD THIS TO REFS.]

Population *capensis*, Southern Africa
Scott & Rose (1996) provided an estimate of 100,000 – 250,000 birds in Southern Africa. Harrison *et al.* (1997) report of movements from South Africa to Namibia and Mozambique. In Southern Africa it is locally abundant, but scarce over much of its range (Scott 1999). 3604 were recorded in the AfWC in January 1998 (Dodman *et al.* 1999).

UPDATE: 2014: 11,562 at Walvis Bay in July 2013. Zambia: Only wanderers to the south and west (Dowsett et al. 2008). Highest count in Botswana was 1,100 at the Nata Delta in January 2002, elsewhere some dams in the southeast may support up to 200 at the most (Tyler 2011). <100 in Mozambique. It is widespread in South Africa, with past counts of a few thousand in the Western Cape (Hockey et al. 2005). 1,740 in July 2007 IWC; 5,777 in January 2007; 3,063 January 2013. However, much more habitat available than in Namibia. Mainly in coastal saline wetlands in Angola (Dean 2004).

It would seem likely that country totals, allowing for seasonal variations, may be approx.;

Botswana: 500 – 2,000
Zambia: negligible
Zimbabwe: <500
Namibia: 10,000 – 20,000
Mozambique: 0 – 100
South Africa: 10,000 – 50,000
Angola: 100 – 2,000
Ca. 20,000 – 75,000

Trend. Past increases are well documented (eg Hockey et al. 2005), but current trend is not well known.

***Anas strepera*, Gadwall**

Two populations occur in northern Africa during the northern winter, but there is no information from Africa that merits contributing to the population estimate.

***Anas penelope*, Wigeon**

Two populations reach Africa during the northern winter. There would appear to be expansion of the non-breeding range in NE Africa. There is no information that merits change in the existing population estimate.

***[Anas sparsa*, African Black Duck**

Population *sparsa*, Southern Africa
This is a widespread resident in Southern Africa, north to Zambia, yet it is nowhere common and densities are low. Harebottle (pers. comm.) suggests that A/B is a more appropriate population estimate, based on AfWC data from South Africa. In the January 1998 AfWC, the sub-regional total was 121 (Dodman *et al.* 1999), and this is a typical count compared with other AfWC results (AfWC reports). Although many suitable areas for this species are probably not covered in the AfWC, such as highland streams of Lesotho, there is quite high coverage in this sub-region, so a revision to B (rather than A/B) is proposed, with a probably stable population.

Population *leucostigma*, East Africa
Zimmerman *et al.* (1996) state that this bird is uncommon and local on mountain streams in West and Central Kenya and in mountainous areas of northern Tanzania. However, N. Baker (*in litt.*) suggests that they occur on most mountain streams and rivers of Mount Kilimanjaro, so they are probably more common than generally supposed. Baker (1997) gives a population estimate of 12,000 for Tanzania, and a similar number may be present in Kenya. There are very few records from AfWC counts (AfWC reports), usually below 10 for the sub-region, though this is not a bird of open wetlands and tends to be missed in AfWC counts. The lower figure of the current estimate of 10,000-25,000 is increased slightly to 15,000 on account of the national estimates for Tanzania.

Population *leucostigma*, Ethiopian highlands
There is probably more extensive suitable habitat for this species in Ethiopia than in either Kenya or Tanzania, and this population may even be greater than that in East Africa. Farnsworth *et al.* (2000) summarise some recent records, with numbers of up to 10 found in various locations, indicating a wider range of fluvial habitats than previous accounts would suggest. The current population estimate of 2000-10,000 is supported here. The population is likely to be stable, but there is no basis for this as yet.

Population *leucostigma*, Cameroon highlands, E Nigeria
This population occurs on the Mambilla Plateau of Eastern Nigeria and in the highlands and Adamawa Plateau of Cameroon. Walsh (1985) details range expansion in Nigeria. In the lack of more recent information, the current population estimate based on Scott & Rose (1996) is supported.

Population *leucostigma (?)*, Eastern highlands of Guinea
In the lack of recent information, the current population estimate based on Scott & Rose (1996) is supported. The race of this population is unknown.

Population *maclatchyi*, Equatorial Guinea & Gabon
In the lack of recent information, the current population estimate is supported.]

***[Anas platyrhynchos*, Mallard**

There is no information from Africa to merit change in the population estimate of either population, which reaches Africa, though it is worth noting that there have been recent odd records from as far south as Southern Africa (AfWC reports).]

***Anas undulata*, Yellow-billed Duck**

[Population *undulata*, East Africa
This is a widespread resident and wanderer (Zimmerman *et al.* 1996) in Kenya, found especially in highland areas, also occurring in small numbers on Lake Victoria. It is much less common in northern Tanzania than in Kenya, as supported by AfWC data, but sub-regional counts do not usually produce more than a couple of thousand (AfWC reports). Baker (1997) estimates a population of 3,000-5,000 in Tanzania. It is suggested here that the southern limit of this population is in northern/central Tanzania. There are breeding records from Ethiopia, though this species is not numerous here. The population estimate of 50,000-100,000 is revised downwards to account for this range reduction to 20,000-60,000, with a 1% level of 400.]

Population *undulata*, Southern Africa
This is a common and often gregarious resident of Southern Africa. Scott & Rose (1996) give the northern limit as the Zambezi River, but it is suggested here that this population should include birds in Angola, Zambia, Malawi, Mozambique and southern Tanzania (Ufipa Plateau), as the Zambezi River is not a natural barrier for this population, whereas blocks of miombo woodland in northern/eastern Zambia and southern Tanzania possibly are. Further, there would appear to be a 'loose' gap in distribution in mid Tanzania (Baker & Baker, Draft: 2002). Several sites meet the 1% level in South Africa, e.g. Chelmsford Dam with 1162 birds in July 1997 (Dodman *et al.* 1999).

2014: 17987 in IWC in South Africa in Jan 2007.
Hockey (2005): Past population estimates of 52,000 – 65,000 (1960s – 1970s); patchy distribution in Namibia. An estimate of 100,000 in southern Free State and southern Transvaal made in the 1980s (Harrison et al. 1997). Counts in southeast Botswana rarely exceed 150 and they are not common in the north (Tyler 2011). It may number in hundreds at some Zambian wetlands (Dowsett et al. 2008).

Estimate of D (100,000 – 1,000,000) seems too high. More likely: 100,000 – 250,000. [update text]

[Population *rueppelli*, Northern East Africa to S Sudan
This population is rather less well known than the other two. Records from Marsabit and Ol Bolossat in Kenya probably refer to this population (Zimmerman *et al.* 1996). 835 were recorded in Ethiopia and 198 in Uganda in January 1998 (Dodman *et al.* 1999). It is most likely that birds from the East African population *undulata* also occur in Uganda. There is no recent information from Sudan, and in the general absence of new data, the current population estimate is adopted.

Population *rueppelli*?, Cameroon highlands & East Nigeria

This small population is restricted to the Bamenda Highlands and Adamawa Plateau of West Cameroon and the Mambilla Plateau of East Nigeria, where it is scarce and local (Borrow & Demey 2001). Its race and status are unclear. Young & Robertson (2001) list the known records, which date back to 1949, with the highest count being of about 50 birds at Dang Lake, Ngaoundere, Cameroon in April 1999. Whilst this species can be highly dispersive, the fairly regular records from this part of West Africa and the availability of suitable breeding habitat suggest that a small discrete breeding population occurs here. A tentative preliminary population estimate is given of <5000, whilst the status of the population is in need of verification and further investigation.]

***[Anas melleri*, Meller's Duck**

This duck is a key species of the East Malagasy wetlands Endemic Bird Area, and is recorded from 8 of the 18 IBAs which fall within this EBA, though it is most likely to occur in another 3 of them (ZICOMA 2001). The largest congregations known are at Lake Alaotra, from where there is a record of 339 from July 1998 (Dodman *et al.* 1999). The species is fairly widespread at suitable wetlands within the East Malagasy biome, but is nowhere common, and the population estimate of 2,000-5,000 (Scott & Rose 1996) is supported here. G. Young (*in litt.*) considers the population to be between 2,500 and 5,000 birds, but also indicates that this population is declining, so the earlier estimate is retained.

This duck was introduced to Mauritius in [??]. It is rare on the plateau of the island … [update text]]

***[Anas smithii*, Cape Shoveler**

This is a resident species endemic to Southern Africa and 'abundant' in the Cape and Highveld regions of South Africa (Sinclair *et al.* 1993). AfWC sub-regional totals tend to be in the region of 3,000-6,000. The current population estimate is supported here. This species is only an occasional non-breeding visitor to southern Zambia (Dowsett *et al.* 1999). The population estimate of Scott & Rose (1996) of 20,000-50,000 is supported, with a mid-point 1% level of 350.

***Anas clypeata*, Northern Shoveler**

Population *clypeata*, Black Sea, Mediterranean, W Africa (non-breeding)
There is a good base of information for the population that reaches West Africa in the non-breeding season. Regular counts from West Africa have contributed to the derivation of this estimate, which is supported here.

Population *clypeata*, SW Asia, NE & E Africa (non-breeding)
This population is somewhat less well known. There would appear to be range extensions in Africa, with some birds reaching as far south as Southern Africa (AfWC reports). However, there is no information from Africa which merits change to the current population estimate.

***Anas marecula,* Amsterdam Island Duck**

The last record of this extinct duck endemic to the Amsterdam Islands is probably one of 1793 on St. Paul Island (BirdLife International 2000).

***Anas theodori,* Mauritian Duck**

The last record of this extinct duck endemic to Mauritius is of 1696 (BirdLife International 2000).

***Anas bernieri*, Madagascar / Bernier's Teal**

This is a rare duck of Western Madagascar, occurring in 11 of the 34 IBAs that fall within the area of the West Malagasy wetlands Endemic Bird Area (ZICOMA 2001). 15 were recorded at Antsamaka in January 1998 and over 50 in the Antsalova region and 10 in the Mahavavy estuary in June 1997 (Dodman *et al.* 1999). More recently, two sites surveyed held around 150 and 300 birds respectively (R. Safford, *in litt.*). There appear to be at least three isolated (sub-)populations, with several hundred birds at known sites within each, whilst some areas have not been adequately surveyed; the moult site at Antsamaka has attracted several hundred moulting adults each season, with no birds known to be moving to other (sub-)populations (G. Young, *in litt.*). Several hundred birds have been seen at sites in the other (sub-)populations (G. Young, *in litt.*).

The current estimate of 500-1,000 (Scott & Rose 1996) is thus considered too low. G. Young (*in litt.*) proposes a new population estimate of 1,500-2,500, whilst its status is declining, possibly quite rapidly. This is a priority species for conservation in Madagascar.]

***Anas erythrorhyncha*, Red-billed Teal**

Population *erythrorhyncha*, Southern Africa
Scott (1999) provides a comprehensive summary of the status of this population, which is probably the most abundant duck in the sub-region. It occurs in all types of freshwater wetlands, often in mixed flocks. Recent high counts include 10,407 in July 1999 at Zambia's Kafue Flats, though there have been flocks of up over 29,000 here in the past (Leonard 2001). Harrison *et al.* (1997) estimate about 50,000 to occur on the highlands of Transvaal in wet years. January AfWC counts tend to yield in the order of 5,000, but it is the widespread occurrence of this species at a wide range of wetlands (many of which are not covered in the AfWC) that lends supports to the quite high population estimate.

2014. Highest counts are of 20,000 and 19,000 at Lake Ngami, Botswana in December 2004 and 2008, from where there are past estimates of up to 500,000 in the early 1970s (Tyler 2011). IWC data do not reach these high estimates of the past, but these may be very irregular events. The Scott & Rose (1996) estimate of 500,000 – 1,000,000 and trend of stable remain.

Population *erythrorhyncha*, Eastern Africa
This is a common resident of the Rift Valley in Kenya and northern Tanzania. Numbers are generally rather low in the AfWC, e.g. 443 from 3 countries in January 1998 (Dodman *et al.* 1999), 1647 from January 1999 (Dodman *et al.*, in press), with most records coming from Kenya. There are rather few records from Uganda, and the wetlands of inland Kenya surely form the stronghold of this population. Only 1004 were recorded in nationwide surveys in Tanzania in January 1995 (Dodman & Taylor 1995). Scott & Rose (1996) give a population estimate of 100,000-300,000. In looking at records, Dodman (2002) considered this to be too high, noting however that this species is widely overlooked during waterbird counts, when it may be thinly distributed on small, scattered wetlands. Further, this bird breeds along the Tanzania coastal strip as far north as Tanga during the long rains, and may thus be absent from traditional AfWC count sites during the January counts (N. Baker, *in litt.*). Baker (2007) estimates seasonal totals for Tanzania from 15,000 – 30,000.

This current estimate is thus retained, but may need to be revised downwards should it be found to be largely absent from such sites.

2014. Generally uncommon in Uganda (Carson et al. 2005). A common wanderer in Kenya, though occurrence is confined at the coast (Lewis & Pomeroy 1986). Generally uncommon in Ethiopia (Ash & Atkins 2009). A fairly common visitor and/or resident in southern Somalia, though most records were of only small flocks of 1-10 birds (Ash & Miskell 1998). It is seasonally common in eastern DR Congo (Lippens & Wilmé 1976).

Tanzania thus probably holds a rather significant proportion of the population. A more conservative estimate is proposed of based on:

Somalia;	1,000 – 5,000
Ethiopia:	4,000 – 20,000
Kenya:	5,000 – 25,000
Tanzania:	15,000 – 30,000
Elsewhere:	5,000 - 20,000
Total:	30,000 – 100,000

Population *erythrorhyncha*, Madagascar
No change is proposed to Scott & Rose's (1996) estimate of 15,000-25,000. There was a count of 5,237 birds in January 1998 (Dodman *et al.* 1999).

No obvious threats (Safford & Hawkins 2013).

***[Anas acuta,* Northern Pintail**

Population *acuta*, Black Sea, Mediterranean, W Africa (non-breeding)

This is a relatively well-known population, with established and regularly monitored non-breeding strongholds in wetlands of Sahelian West Africa. Counts from sites in the Senegal Delta and elsewhere have already contributed to the development of the population estimate of 1,200,000, which is supported here.

Population *acuta*, SW Asia, E & NE Africa (non-breeding)
This population is not as well known as the previous one. As with other palearctic-breeding ducks moving into East Africa, there is some evidence to suggest an extension of its usual range southwards. The most important sites for this population in East Africa are rift Valley lakes in Ethiopia. The current population estimate is supported here.

***Anas eatoni,* Eaton's / Kerguelen / Southern Pintail**

Population *eatoni*, Kerguelen Islands
This population is restricted to the Kerguelen Islands, a large island group in the southern Indian Ocean which covers some 700,000 ha. A number of recently-identified Important Bird Areas support breeding groups (Catard 2001): Péninsule Courbet (5000 pairs in 1989), Baie Larose (small numbers), Péninsule Rallier du Batty (numbers lacking), Iles Foch, Sainte Lanne Gramont and Howe (numbers lacking). The population at Courbet, which contains a large number of lakes and boggy margins, is the most important for *A. eatoni* in the French Southern Territories. The count of 5000 pairs here clearly forms the basis of the current population estimate, which is supported here. It is important though to obtain a more recent count of this and other breeding colonies, especially given the presence of mammalian introductions on the island group, including cats.

Population *drygalski* (Southern Pintail), Crozet Islands
The Crozet Islands are much smaller than the Kerguelen Island group, covering only 50,000 ha, and comprising five mountainous islands of volcanic origin (Catard 2001). There is much less suitable habitat here for *A. eatoni* than on Kerguelen, and the population *drygalski* is thus substantially smaller than *eatoni*. The current estimate of 1400 is supported. Both Ile de la Possession and Ile de l'Est are thought to contain more than 250 birds each, but data are lacking.

***Anas querquedula,* Garganey**

Population *querquedula*, W Africa (non-breeding)
The garganey is one of the most gregarious ducks in Sahelian wetlands during the northern winter, with large numbers occurring in the Senegal Delta, the Inner Niger Delta and the Lake Chad basin, and many other sites in between. Data from West Africa has contributed significantly to the development of the current population estimate, which is supported here. However, there have been indications of population decline, and this figure may need to be revised downwards at some point in the near future.

Population *querquedula*, SW Asia, NE Africa (non-breeding)
This population is regularly recorded in reasonable numbers in wetlands (especially large lakes) of Ethiopia and Kenya, where it can be abundant. It occurs in small numbers in Tanzania, where a high count of 421 was obtained in January 1995 (Dodman & Taylor 1995). There are no recent data from Africa that merit change to the current population estimate of 100,000-200,000, though a count of 19,769 from Sudan (near Khartoum) in January 1997 (Dodman *et al.* 1997) could hint to higher numbers, given the extent of and lack of information from wetlands in the south of this country.

***Anas crecca,* Green-winged / Common Teal**

Population *crecca*, Black Sea, Mediterranean to W Africa (non-breeding)
No change is proposed to the current population estimate. Relatively small numbers regularly reach wetlands in the Sahel, for instance at Djoudj in Senegal and Hadejia Nguru in Nigeria, and there are records further south also, for instance in The Gambia. There was a large influx in 1994, when over 700 were recorded in Niger (Brouwer & Mullié 2001).

Population *crecca*, SW Asia, NE Africa (non-breeding)
No change proposed to the current population estimate. This bird is a regular Palearctic migrant to Kenya in small numbers, but is scarce in Tanzania. Most records in Africa are from Ethiopia.]

***Anas hottentota,* Hottentot Teal**

Population *hottentota*, Lake Chad Basin

This population appears to have dwindled in recent years (1980s-1990s), though there were once reasonable numbers, the majority from within the Lake Chad Basin, especially in northern Nigeria, where it was thought to be becoming more widespread (Elgood 1982). J. Wilson (*in litt.*) reports that, although never seen in groups of greater than 10, around 2-5 individuals were present on the majority of the boreholes and ponds in the Baga / Alagarno area of northeast Nigeria throughout the period November-April. U. Ottosson (*in litt.*) saw 3 birds in November 2001 in the Malamfatori (Bisangana) are of Nigeria (very far northeast). Scott (1999) summarises records from 1994-1997, a period in which only 7 were recorded (5 in Nigeria, 2 in Niger). Subsequently, 7 were recorded at Hadejia Nguru, Nigeria in January 1998 (Dodman *et al.* 1999), and 1 in northern Cameroon in 1999 (Dodman *et al.*, in prep.). J. Wilson (*in litt.*) suspects that the lack of records from the Hadejia-Nguru wetlands during the AfWC is that small oases to the north are not being surveyed. The population seems to be largely restricted to small wetlands of the Lake Chad Basin, with very few records now from the major wetlands, such as Hadejia-Nguru. Certainly this bird is very scarce, with clear evidence of decline. A new population estimate is proposed of 1,000-5,000, trend declining, with a mid-point 1% threshold of 30.

2014. Trolliet (in litt. 2011) noted that this species was seen only once (2 birds) in the Lake Chad Basin in aerial surveys and proposed an estimate of <1,000 birds. 45 were counted at Marma Chanel in northern Nigeria in January 2012. Minimum estimate is increased to 100. Declining.

Population *hottentota*, Eastern Africa to northern Zambia
The Hottentot teal is locally common in East Africa, especially in the Rift Valley. However, numbers are never particularly high, though it may be overlooked to some extent in AfWC counts. 1,962 birds were recorded in nationwide counts in Tanzania in January 1995, when 725 were also reported from Kenya (Dodman & Taylor 1995). There were sub-regional totals of 999 in 1997 (Dodman *et al.* 1997), 624 in 1998 (Dodman *et al.* 1999) and 886 in 1999 (Dodman & Diagana 2003). Baker (1997) estimated a maximum of 25,000 birds in Tanzania.

Given these generally low numbers and a relatively restricted distribution in comparison to Southern Africa, Dodman (2002) proposed a population estimate of C (25,000 – 100,000), in line with a downward revision of the Southern Africa population (Scott 1999).

It is a fairly common presumed intra-tropical migrant in Ethiopia; numbers recorded are usually of 1-7 birds (Ash & Atkins 2009). This species has declined in Uganda since the first half of the 20th century; the few recent records are of small numbers at the edge of shallow swamps (Carswell et al. 2005). 3,202 were counted in Tanzania in January 2005.

Population *hottentota*, Southern Africa to southern Zambia
Scott (1999) recently proposed revising the estimate of Scott & Rose (1996) of 100,000-200,000 down to C (25,000 – 100,000). This revision is supported here. Recent sub-regional totals are <1708 in 1998 (Dodman *et al.* 1999) and <2216 (Dodman *et al.*, in prep.). However, there was quite a high count recently of 3,930 at Lochinvar National Park in the Kafue Flats of Zambia (ABC Vol.9 No.1 2002). It is noteworthy that there are generally much higher records of this population than of the Eastern Africa population, as summarised by Scott (1999). A 1% level of 500 is proposed.

2014: Rarely >200 at most sites in the region, except in Botswana and a record of 1,500 at Lake Liambezi, Caprivi, Namibia in July 2001 (Hockey et al. 2005). 500 s moz (Parker 1999). Uncommon resident in Angola (Dean 2000). >4,000 in Zambia January 2001, mostly at Lochinvar NP on KFs. Past high records in Botswana, eg 3,500 at Lake Ngami in 1970s, where recent maximum is 280 in December 2008; higher numbers have been close to 500 at Maun sewage ponds and over 600 in the Okavango in January 2003 (Tyler 2011).

[Population *hottentota*, Madagascar
The Hottentot teal is generally found in quiet well-vegetated wetlands in Madagascar, a habitat that has been in decline. Recent national totals from counts are 151 in July 1997 and 349 in January 1998 (Dodman *et al.* 1999) and 70 in January 1999 (Dodman *et al.*, in prep.). No change is proposed to the current population estimate of 5,000-10,000.]

***[Marmaronetta angustirostris,* Marbled Teal / Duck**

Green (1993) provides a thorough review of the status and conservation of the marbled teal across its entire range, estimating a world 'wintering' population of at least 33,000, with at least 2,000 in the West Mediterranean and West Africa, about 1,000 in the eastern Mediterranean and at least 30,000 in West and Central Asia (25,000 in Iran and 5,000 in Pakistan). A picture of widespread decline in the species is given. Two populations occur in Africa.

Population *angustirostris*, West Mediterranean, West Africa

There are some very recent records from surveys in Tunisia (Azafzaf, in prep.), when the following numbers were recorded in early February 2002:

Douz Laâla:	90
Zlalaa:	347
Noueil:	415
Ghidma:	96
Machiouha:	170
Blidette:	1300
TOTAL:	2418

Amari & Azafzaf (2001) list 15 IBAs in Tunisia where *M. angustirostris* is found, also detailing breeding figures. These are summarise below:

IBA	Breeding pairs	Non-breeding
Ichkeul	50-200	
Mornaguia reservoir	3-10 (8-30 birds)	
Soliman		50-220
Lebna reservoir	Breeds	50-100
Lagune de Korba		40-100 on passage
Oued Sed	30	
Sebkhet Kelbia	20-100	
Metbassta	30-60	
El Houareb reservoir	150-620	
Salines de Thyna	1-3	
Sebkhet Sidi Mansour	17 (50 birds)	300 (wintering)
Sebkhet Nouaïel	Breeds	40-250 (wintering)
Douz Laâla	Breeds	120-200 (wintering)
Snam	Breeds	50-150 (wintering)
Ghidma	60	150-200 (wintering)
TOTAL	**>361 – 1070 (>1083-3210 birds)**	**800-1520**

H. Azafzaf (*in litt.*) also recorded 412 at Oued Rmal Reservoir, Tunisia in September 2002.

Population estimates in the past have been based largely on numbers in Morocco and Spain, where there have been fluctuations, with general declines noted especially in Spain, as summarised by Green *et al.* (in prep.). Less well-known breeding sites in Tunisia may have given rise to some of these fluctuations.

A number of the IBAs of Morocco are important non-breeding sites for *M. angustirostris*, the non-breeding totals of which come to about 6,700 birds (Magin 2001), though clearly these figures cannot be added so simply. The Barrage Mohamed V appears to be an important breeding site, with perhaps up to some 91 pairs (Magin 2001), though Green *et al.* (2002) list this as a 'probable' breeding site, mentioning 8 other sites where breeding was confirmed during the 1990s. However, many Moroccan wetlands known to be of importance for this and other threatened waterbird species are in an unfavourable conservation status, and there has been an annual loss of wetlands of 1.2% (Green *et al.* 2002). Maximum counts in the 1990s of marbled teal in Morocco given by Green *et al.* (2002) are summarised below:

Dayet 'Awa:		1,200
Other mountain lakes:	5	
Fresh lowland lakes:	20	
Marais d'El Hotba-Wlad Salem:	1,420	
Merja de Sidi Bou Ghaba:		835
Plan d'eau de Dwiyate:	519	
Lower wad Massa:		14
Marais du Bas Loukkos:	75	
Embouchure de l'wad Malwiya:	90	
Embouchure de l'wad Massa:	350	
Sebhka Zima:	56	
Merja Zerga:		25

Barrage Mechra' Hommadi:	62	
Barrage Mohammed V:	455	
Barrage Al Massira:		1,973
Barrage Taghdoute:		4
Barrage Youssef Ben Tachafine:		700
Barrage Al Mansour Ad-Dhabi:	255	
Salines at Sebkha Sidi Bou Areg:		4
Salines de Lixus:		63
Dayet Merzouga:	up to:	1,000 in 1996 (Green 2000)
Wetlands of wad Al Mellah:	220 (& 16 broods in 1999).	

Probable breeding was reported from a site near El Kala, Algeria in the 1980s, with up to 50 pairs in wet years; birds have been observed during winter at the nearby Marais de Mekhada IBA (Coulthard 2001). *M. angustirostris* is regularly present at The Barrage de Boughzoul IBA from the end of April to June in numbers up to 240 individuals, and also on passage, whilst up to 220 winter at Marais de la Macta, and possibly still at Sebkha d'Oran (Coulthard 2001). *M. angustirostris* occasionally visits wetlands in the Sahelian zone of West Africa, though historical records are much more significant than recent ones, suggesting that this population has certainly declined significantly over the last 30 years.

The current population estimate of 3,000 may be too low, and there could be a breeding population somewhere in the order of 2,500 breeding birds in Africa alone, possibly more if breeding is found to take place in Algeria.

A new population estimate is proposed of 3,000-5,000, whilst a 'new' trend of unknown is given, on account of fluctuating numbers and the uncertainty of breeding regularity in Tunisia, though it is clear that the population was declining in the second half of last century. This uncertainty is also the reason for downgrading the type of estimate from 1 to 2.

Population *angustirostris*, Eastern Mediterranean
Marbled teal formerly bred in the Western Desert and in the Nile Valley in Egypt (Green 1993), though for some time now it has only been a visitor during the northern winter to the Nile Valley and Nile Delta in small numbers (Goodman & Meininger 1989). No new information was found to merit change to the status or estimate of this small declining population of about 1,000 birds.]

***Netta erythropthalma,* Southern / Red-eyed Pochard**

Population *brunnea*, Southern, Eastern Africa
This is a widespread duck, most numerous in Southern Africa, but ranging to the far NE of the continent, being fairly common in the Rift Valley in East Africa. 4815 were recorded in Southern Africa and 139 in East Africa in January 1998 and 1523 in Southern Africa in July 1997 (Dodman *et al.* 1999). Numbers were much higher in East Africa in January 1999, with 10,845, mostly from Ethiopia, almost all (10,100) from Lake Abijatta, whilst there were 3309 recorded in Southern Africa the same month (Dodman *et al.* in prep.). Dinesen (pers. comm.) reports of breeding in Usangu, western Tanzania in March 2002. Baker (1997) estimated 5,000 – 10,000 birds in Tanzania. The current population estimate of 30,000-70,000 would seem to be in the right order, and is supported here.

Recent IWC: 7,141 in January 2001. [UPDATE TEXT. Decline in IWC TRIM …]

***[Aythya ferina,* Common Pochard**

Population *ferina*, C Europe, Black Sea, Mediterranean (non-breeding)
No changes proposed to the population estimate or trend of this population, for which Scott (1999) discusses declines in the Mediterranean.

***Aythya nyroca,* Ferruginous Duck**

Population *nyroca*, North & West Africa (non-breeding / breeding)
There have been limited records from the AfWC in West Africa, for instance 37 and 39 in Mauritania in January 1998 and 1999 respectively and 16 in Senegal in 1999 (Dodman *et al.* 1999; Dodman *et al.* in prep.). However, there was a very significant aerial count in the Inner Niger Delta of Mali in January 1999 of 7801 (Dodman *et al.* in prep.), amongst other records in Mali from between 1998 and 2001being collated by the Wetlands International Mali office. There was also a high count at Lake Fitri in Chad of 3,800 in 1999 (Trolliet

& Thal 1999-2000). Further, Gustafsson *et al.* (in press) observed 50 birds on 1st September 2000 in far Northeast Nigeria, whereafter 1000+ were seen on 18th October 2000 and 500+ on 21st October 2000 (same locality).

There are some significant non-breeding records from Tunisia, including from Lebna reservoir, where several hundred regularly occur as post-breeding migrants; there is also a breeding record from Lebna (Amari & Azafzaf 2001). *A. nyroca* breeds regularly in small numbers in the Kebili oases in southern Tunisia (A. El Hili, pers. comm.). 357 were recorded at Oued Rmal Reservoir (Tunisia) in September 2002 (H. Azafzaf, *in litt.*). The Marais de Lache (or Marais du Bas Loukkos), an unprotected site with multiple threats, is a breeding site in Morocco, with small numbers only (Magin 2001). A maximum of 100 have been counted here in the 1990s, and a maximum of 13 at Merja de Sidi Bou Ghaba, where breeding also occurs (Green *et al.* 2002). However, there may be only one breeding pair at each site (A. Green, in litt.).

In Algeria there is a breeding population of hundreds of pairs at Lac Tonga, estimated at over 600 pairs in 1992, whilst 717 were recorded here during the non-breeding season in 1997; the wetland complex of the Guerbes-Sanhadja plains is arguably the second most important breeding site, with more than 7 pairs (and one nest) found here in 1991 (Coulthard 2001). Breeding occurs at other sites, probably in small numbers, for instance at Lac des Oiseaux – Garaet et Touyour, where 2 pairs bred in 1991, though up to 22 birds have been seen here during the breeding season; Marais de Mekhada is also a probable breeding site (Coulthard 2001).

It would thus appear that Algeria is the key stronghold for this small breeding population. Unless there are overlooked breeding sites here it is most likely that the recent high counts in Mali are birds from the East Mediterranean breeding population (see below).

The current population estimate is retained based on breeding data, with a 1% level of 25, but a new type of estimate of 2 is proposed, as the recent counts in Mali, Chad and Nigeria could indicate a hitherto overlooked breeding site (or sites) in NW Africa.

Moroccco:	5-10 pairs
Tunisia:	80 pairs
NE Algeria:	550-600 pairs
El Golea (Algeria):	200 pairs (500 birds)
Total:	2400-2570

Population *nyroca*, E Europe, E Mediterranean, Black Sea (non-breeding)
Scott (1999) suggests that birds of this population may spend the northern winter in West Africa; the recent high counts from Mali, Chad and Nigeria could thus be from this population (see previous population account). Otherwise, there is little information from Africa to warrant change in the estimate of this population, which appears to be in broad decline across its breeding range.

Population *nyroca*, SW Asia & NE Africa (non-breeding)
Scott (1999) mentions a count of 5000 wintering in the Sudd swamps of Sudan in 1997, which would be a very significant count for this small diminishing population, though more likely these would belong to the East Mediterranean population. There are regular low records of wintering birds in Ethiopia, with sightings from Lakes Chelekleka and Zewey in 1988 and in the 1990s (Farnsworth *et al.* 2000). *A. nyroca* is a scarce migrant in Kenya, with irregular records from a number of Rift Valley lakes (Zimmerman *et al.* 1996). The current population estimate is retained.

Despite a number of important reviews, the status and in particular the migratory strategies of this threatened bird remain unclear, and expected non-breeding sites do not always match up with breeding data. Clearly more fieldwork and targeted research are needed to answer some of these questions and to aid flyway-level conservation planning.

***Aythya innotata,* Madagascar Pochard**

This species is almost certainly extinct, with no reliable records in recent years from Lake Alaotra and its environs, despite a number of searches.

***Aythya fuligula,* Tufted Duck**

Population *fuligula*, C Europe, Black Sea, Mediterranean (non-breeding)
No changes proposed to the current population estimate of 600,000.

Population *fuligula*, SW Asia, NE Africa (non-breeding)
No changes proposed to the current population estimate of 200,000. 985 were recorded in Ethiopia in the January 1998 AfWC (Dodman *et al.* 1999) and 2769 in January 1999, with one also in Djibouti (Dodman *et al.*, in prep.).

***Melanitta nigra,* Common Scoter**

This species reaches to coastal waters of Mauritania, where it is not regularly recorded. No changes proposed to the current population estimate of 1,600,000 and stable trend.]

9. Cranes

***Balearica pavonina,* Black Crowned Crane**

Population *pavonina,* Black Crowned Crane, West Africa
Williams *et al.* (in prep.) indicate that there is a population of about 15,000 birds, ranging from the Senegal Delta, south to Guinea-Bissau and eastwards across the Sahel zone (i.e. avoiding the Guinea forest block) to northern Nigeria (where it has largely disappeared) and the Lake Chad Basin. The population suffers local declines in parts of its range, including Mali and Nigeria, where it has suffered due to trade, as well as other factors.

There are rumours about observations in Chingurma-Duguma (Lake Chad Basin National Park) in eastern Nigeria, but this area is rarely visited (U. Ottosson, *in litt.*). Scholte (1996) indicates that it has declined in northern Cameroon from an estimated 10,000 birds west of the Waza Camp in 1971 (Holmes 1972) to an estimated 2,500 in northern Cameroon. The population now in the Lake Chad Basin appears to be stable after past declines. It is probably also stable in the scattered floodplains of the Casamance (Senegal) and in Guinea-Bissau, which supports some 1,500-2,000 birds. However, the population in the Senegal Delta is in decline (P. Triplet, in litt.). There are about 1,000 in Niger (Brouwer & Mullié 2001). The overall picture is of a widely but patchily distributed bird, which may be relatively stable across much of its range, but in some areas it is certainly in decline, so this trend should be used as an overall trend.

Cranes make regular relatively local movements, linked to rains, food availability and breeding. This is most likely to occur at times between different sub-populations, which have been termed 'Crane Areas'. They certainly cross international borders in the western part of its range and in the Lake Chad area. The geographical division between *pavonina* and *ceciliae* is not exactly clear, but it is probably close to the Sudan/Chad border.

Approximate summaries of the main population centres are:

Area	**No.**
Senegal Delta & E Mauritania	700
S & E Senegal to Guinea-Bissau	3,500
Inner Niger Delta, Mali	100
Sahelian Zone, Mali / Burkina / north Côte d'Ivoire – Ghana/Togo	350
Niger (excluding Chad Basin)	950
Chad Basin (Chad / Cameroon / CAR / northern Nigeria / E Niger)	9,350
Upper Benue River (Nigeria, Cameroon, Chad)	50
TOTAL	15,000

These figures are based on a list of 38 Crane Areas in the draft Status Survey and Conservation Action Plan for the Black Crowned Crane (Williams *et al.*, in prep.).

UPDATE. Trolliet., B. In litt. 2012. The species has almost disappeared from the Inner Niger Delta. It is more common in the Lake Chad Basin, but recent counts do not exceed 2,000 birds in Senegal Delta+Inner Niger Delta+Lake Chad Basin. 5,000 – 15,000
2,000 seen in Zakouma in Feb 2014.

Population *ceciliae,* Sudan Crowned Crane, E Chad to Ethiopia
The picture of *ceciliae* is less well known than that of *pavonina*, and the scale of magnitude is based rather heavily on one estimate of 36,823 from the Sudd swamps of Sudan (Howell *et al.* 1988). Given the political upheavals in southern Sudan in the last decades, there is no reliable update or recent confirmation of this figure. However, cranes are certainly still present in reasonable numbers in Sudan, and Wetlands International and the International Crane Foundation supported surveys there in 2000 and 2001, led by Tirba (in prep.), whose data provides the basis of estimates of 11,000 in Darfur, 3,000 in Kordofan and 1,000 in the Dinder Floodplains. There is also a crane population in Ethiopia, northern Uganda and northern Kenya, where some 2,500 are estimated to occur (Beilfuss *et al.*, in prep.). This gives a working total of 17,660 in addition to the number of the Sudd, which is estimated at between 10,000-37,000, where it is assumed wildlife in general is in decline.

Based on these data, the total population estimate is thus 25,000-55,000, trend declining. This population certainly moves regularly, especially between Sudan and Chad (M. Younis, pers. comm.) and between Sudan and Ethiopia. It is also an occasional visitor to Garamba National Park in northeast Democratic Republic of Congo, where it is observed between March and April (Demey *et al.* 2000).

***Balearica regulorum,* Grey Crowned Crane**

Population *regulorum,* (South African) Grey Crowned Crane
The current estimate of <10,000 is generally supported, but this figure would seem to be slightly too low as a maximum limit. In South Africa the population would appear to be stable at around 4,000 birds, whilst there are still good numbers in Zimbabwe, where it is considered somewhat of a pest species (Beilfuss, *in litt.*). 457 were recorded in the AfWC count of July 1997 in Zimbabwe, against 51 in South Africa, though there were few records in January 1999 (Dodman *et al.*, 1999). Assuming there to be at least 4000 birds in Angola, Botswana, Namibia and Zimbabwe, and probably more, a new population estimate is proposed of 8000-12000, retaining the 1% level of 100. Meine and Archibald (1996) give the trend as declining, but this no longer appears to be the case, judging from recent comparisons, so a new trend of stable is proposed.

2014: UPDATE ACCORDING TO MORRISON (IN PREP)
Morrison, K. (compiler) 2015. International Single Species Action Plan for the Conservation of the Grey Crowned Crane *Balearica regulorum*. AEWA Technical Series No. XX.

&
Morrison, K and Baker, N. 2012. Grey Crowned Cranes in peril – A status review and threat assessment. Abstract for the 13th Pan African Ornithological Congress, Tanzania.

ADD THESE TO REF LIST.

6500. DEC

Population *gibbericeps,* (East African) Grey Crowned Crane
Rose & Scott (1997) provide an estimate of 75,000-85,000 based on Urban in Meine & Archibald (1996), which gave <30,000 for Uganda and about 35,000 for Kenya as the strongholds. However, D. Pomeroy & N. Gichuki (pers. comm.) each suggest these numbers may be significantly lower now, especially in light of information from Southwest Uganda in Muhweebwa (unpubl. MSc study). In east Democratic Republic of Congo, it occurs north to Lake Albert and Nioka (Demey *et al.* 2000). In July 1997, 382 were recorded in Zambia (Dodman *et al.*, 1999). Beilfuss (*in litt.*) suggests that there are about 5,000-10,000 in surrounding countries, citing low counts in Zambia in recent years. A new population estimate is thus proposed of 50,000-65,000, based on 20,000-25,000 in Uganda, 25,000-30,000 in Kenya and 5,000-10,000 in other countries (mainly Democratic Republic of Congo, Tanzania, Zambia, northern Zimbabwe, Malawi and Mozambique). A mid-way 1% level of 575 is proposed. The status is declining, as given by Meine & Archibald (1996). The AfWC data for Eastern Africa is not wholly reliable for crowned cranes, as only one species 'Crowned Crane' appeared on the census forms in the 1990s, causing some erroneous recording of both grey and black crowned cranes.

2014: UPDATE ACCORDING TO MORRISON (IN PREP) &:
Morrison, K and Baker, N. 2012. Grey Crowned Cranes in peril – A status review and threat assessment. Abstract for the 13th Pan African Ornithological Congress, Tanzania.

24500. DEC.

***[Grus virgo,* Demoiselle Crane**

Population *virgo*, NW Africa (breeding)
Beilfuss (*in litt.*) indicates that there are reports of a few birds still hanging on in the Atlas Mountains, so this population is probably not extinct yet, with maybe 10 pairs or so. A new population estimate is thus proposed of <30. The picture is of a declining population on the edge of extinction. There are old records of *G. virgo* from the Chad Basin, but these could be from the population which breeds in the Black Sea.

Population *virgo*, Black Sea (breeding)
No information from Africa to contribute to the status of this small population. There are old records of *G. virgo* from the Chad Basin, but these could be from the population which breeds in the Black Sea. The only record of *G. virgo* from West Africa since 1972 is of one present at the Hadejia-Nguru wetlands in northern Nigeria from December 1988-February 1989 (Borrow & Demey 2001).

Population *virgo*, Turkey (breeding)
No information from Africa to contribute to the status of this tiny and possibly extinct population.

Population *virgo*, Kalmykia (breeding)
Beilfuss (*in litt.*) suspects the estimate of 30,000-35,000 (Rose & Scott 1997) is too high, and also questions the conservation status of this species in its main non-breeding quarters in Sudan. 1,000 were recorded at Gezira in 1962 (Robertson 2001). However, no reliable recent information from Africa is to hand to warrant changes to this estimate, which might be better gauged by a review of its status in its breeding area.]

***Grus paradisea,* Blue/Stanley Crane**

Population *paradisea*, South Africa
This population occurs largely in South Africa, but there are also regular records of a few birds in Botswana. McCann *et al.* (2001) give a population estimate of 20,000-21,000, based on a series of recent surveys, and describe a trend of stable. This is adopted here.

2014 UPDATE.
Use paper number: 25520. DEC
McCann et al. 2007. Conservation priorities for the Blue Crane (*Anthropoides paradiseus*) in South Africa - the effects of habitat changes on distribution and numbers. Ostrich 78(2):205-211.

Increasing in KwaZulu-Natal (Smith et al. 2011). ADD TO REFS:
Tanya Smith, John Craigie, Greg Nanni and Kevin McCann. 2011. South Africa: Summary of the 2010 annual KwaZulu-Natal crane aerial survey. African Crane, Wetlands and Communities Newsletter 7:10-14.
[update text]

[Population *paradisea*, N Namibia
No change is proposed to this small population of about 60 birds breeding at Namibia's Etosha Pan. This population has declined in the last 10 years (Simmons *et al.*, 2001).]

***Grus carunculatus,* Wattled Crane**

[Population *carunculatus*, Ethiopia
This small population is found in the highlands of Central Ethiopia. The Ethiopian Wildlife and Natural History Society (2001) provide the following information for all the Important Bird Areas where this bird has been recorded:

Fogera Plains:	Uncommon
Bahir Dar-Lake Tana:	Seen irregularly in small numbers
Finchaa & Chomen Swamps:	May breed; 2 noted in surveys, but numbers may be considerably higher
Berga Floodplain:	Uncommon (pair recorded in August 1998)
Dilu Meki (Tefki):	Large numbers in the 1960s, with up to 63 on one occasion (more often 10-15); recent counts of 6 in 1992, 8 in 1993 & 4 in 1996.
Koffe Swamp:	Probably a breeding site; at least 10 seen in 1995
Boyo wetland:	62 recorded in April 1996.
Bale Mountains National Park:	1-4 pairs in wetlands & moorlands of the Sanetti plateau, with breeding attempts on the tarns of Sanetti.

There is clear evidence of local seasonal movements. In light of these records, the current population estimate of 200 seems to be about right. The population would appear to be stable.

Population *carunculatus*, Eastern South Africa
Beilfuss *et al.* (in prep.) provide a new estimate of 235, based on surveys led by the Southern Africa Crane Working Group in 2001. This is adopted here.]

Population *carunculatus*, Central-Southern Africa
Zambia is the core area of this population, with important breeding centres in the Kafue Flats, Bangweulu Swamps, Liuwa Plains and in small scattered dambos (vleis), especially in Western and Northern Province, as summarised by Dodman (1996). Survey in Zambia in the 1990s produced somewhat varying results, but generally gave a population in the Kafue Flats of some 1,150 birds and a further 1,000-1,500 birds in the Bangweulu Swamps. In 2001, Kamweneshe & Beilfuss (2002) counted 756 birds in the Kafue Flats, estimating a population there of 967 birds. R. Beilfuss (*in litt.*) further recognises a population of 1,000-1,500 in Bangwuelu. Results from surveys of July 2002 reveal estimates of 1,062 birds in the Kafue Flats and 1,030 in the Bangweulu Swamps (R. Beilfuss, *in litt.*). There are regular records from both these sites in the AfWC reports, whilst Leonard (2001) reports of 1,171 at Kafue in 1995 and 780+ at Bangwuelu in 1992. Kamweneshe & Beilfuss (in prep.) also report on recent surveys carried out in the western floodplains of Zambia, all the way up to the Angola border, including good coverage of Liuwa National Park and Luenha floodplain and the Barotse Plain from the Lukula down to Senanga, and also an overview of dambos between Itezhi-tezhi and Mongu. The total estimated population for Liuwa was about 650-750 birds, though Leonard (2001) gives a figure of 1,000+ for this area. Certainly, crane numbers fluctuate seasonally, so it is not possible to base estimates on counts from one season only, making population estimates somewhat difficult.

A summary of approximate numbers in Zambia is as follows:

Kafue Flats:		1,000-1,200
Bangweulu:		1,000-1,500
Chambeshi:		<300
Kasanka area:	20	
Kafue National Park (excluding Busanga):	<100	
Busanga Swamps:		100
Lukanga Swamps:		<50
Liuwa Plain:		650-1,000
Barotse Floodplain:		<20
Scattered wetlands NW Province:		<200
Wetlands in Northern / Luapula Province*:	<300	
Scattered wetlands Western Province:	<300	
SW Zambia / Angola border:	<50	
Scattered wetlands Southern province:	<50	

* This includes Lakes Mweru and Mweru Wantipa and Kalungwisha.

This gives a population estimate in Zambia of 4,140-5,190, perhaps slightly higher than the estimate of Beilfuss (in prep.), who proposes some 4,000 birds. However, these figures are very similar, especially when compared with the estimates of Urban (1996) of a global population of 13,000-15,000, with 7,000-11,000 birds occurring in Zambia.

It is difficult to gauge the total population of the scattered wetlands, though certainly in most of western and parts of northern Zambia this is a widespread species, with many small wetlands (especially dambos) harbouring a breeding pair or a trio. These scattered pairs would significantly boost the counts of the main wetlands.

Numbers in some other countries of this population are very difficult to gauge, notably Angola, where few recent surveys have taken place. Dean (2001) lists 4 IBAs in Angola where *G. carunculatus* occurs, notably Cuelei along the Cubango River, Luando Strict Nature Reserve and Mupa National Park, where it is frequent and probably breeds, and Mombolo, where it is an uncommon resident and probably breeds. It status is also not clear in Democratic Republic of Congo, where Demey & Louette (2001) report that they are not uncommon on the plateau in Upemba National Park, frequent at Kundelungu National Park and recorded from Lufira valley. R. Beilfuss (*in litt.*) reports of recent observations from the air in southeast Democratic

Republic of Congo, where cranes are seen in high altitude savannas (presumably in pairs on dambos), where they could be quite spread out.

The main stronghold in Botswana is the Okavango Delta, where Tyler (2001) gives a population estimate of some 1,200 birds. A comprehensive aerial survey of the Okavango in August 2001 resulted in 1,219 cranes ± 342.5 (and 111 nests), with the highest densities along the Boro and Nqoga rivers (Gibson *et al.*, 2002). The only other systematic and comprehensive survey took place in February 2000, resulting in an estimate of 1,508 ± 541 (Gibson, 2000). By merging these two sets of results, Gibson *et al.* (2002) give a population estimate of 1,300 ± 290. In Malawi, the Nyika plateau supports some 12 pairs, whilst there is at least 1 pair at Kasungu (Dowsett-Lemaire *et al.*, 2001). Bento & Beilfuss (2002) estimate about 300 cranes in Mozambique, centred on the Marromeu Complex of the Zambezi Delta.

The situation in Tanzania is rather unclear. The wetlands of western Tanzania are reputed to contain reasonable numbers, for example 506 recorded at Moyowosi-Kigosi in 1992 (Baker & Baker 2001), but recent surveys suggest the population may be as low as 100 (Dinesen, *in litt.*). Beilfuss *et al.* (in prep.) provide further estimates of 250 in Namibia and 200 in Zimbabwe.

To summarise, the population of the Central-Southern Africa population would appear to be in the order of 8,000 individuals, based on these national estimates:

Angola:	400 (?)	
Botswana:	1,300	
Democratic Republic of Congo:		650 (?)
Malawi:	40	
Mozambique:	300	
Namibia:	250	
Tanzania:	200	
Zambia:	4,660	
Zimbabwe:	200	

The population appears to be declining over much of its range. Declines have certainly been noted in key Zambian sites, where estimates at the Kafue Flats in the 1970s and 1980s include 3,000 (Douthwaite 1974) and 3,282 (Howard & Aspinwall 1982). Probably reasons for decline include habitat change associated with a controlled flooding regime, fire and seasons of low rainfall. The recent low count in the Bangweulu Swamps could also indicate a decline here, where fire and seasons of low rainfall may also have detrimental affects, especially on breeding success.

UPDATE. Beilfuss et al. fig is <7550. Add lower limit of 6000 … see rough calcs xls.

[Former Population in West Africa?
There is a single old record of 3 birds at Cufada Lagoon, Guinea-Bissau from March 1948, which could either have been vagrants or last representatives of a relict and now extinct population (Hazevoet 1997). The latter option may well be feasible, given the presence of three birds, this being a common number for a record of a family group. CHECK REF.]

***[Grus grus,* Common/Eurasian Crane**

Population *grus*, NW Europe (breeding)
No changes proposed to this population, which reaches Morocco in the non-breeding season, where 2032 have been recorded at the Barrage Idriss Premier (Magin 2001).

Population *grus*, NE, C Europe (breeding)
No changes proposed to this population, which spends the northern winter in Tunisia, Algeria and Libya. 2500 were recorded at Dayette Morsli – Plaine de Remila (Dayet El Ferd) in Algeria in 1995 (Coulthard 2001), 2500-4300 at Sebkhet Kelbia on the plains of Kairouan, 1000-2000 at Sebkhet Sidi el Hani, 1000-2000 at Sebkhet Sidi Mansour and 2000 at Sebkhet Halk el Menzel (Amari & Azafzaf 2001).

Population *grus*, SW Asia, NE Africa (non-breeding)
No changes proposed to this population estimated at 35,000 (Rose & Scott 1997), which spends the northern winter in Turkey, the Middle East and Northeast Africa, where Ethiopia is its main stronghold. Important sites (and numbers recorded) include the Akaki-Aba-Samuel wetlands (8600), Chelekleka Lake and swamp

(2500+) and the Koka dam and Lake Gelila (1000+) in Ethiopia (Ethiopian Wildlife and Natural History Society 2001).]

10. Rails, Coots & Moorhen

The key reference for this family is 'Rails: a Guide to the Rails, Crakes, Gallinules and Coots of the World' by P.B. Taylor and B. van Perlo (1998). This excellent publication clearly defines the different populations for all rails in Africa. However, there is understandably little information about the size of most populations. Further, there are no established systems in place throughout most of Africa for monitoring the majority of these populations, as many species are not congregatory and/or are not wetland dependant. The AfWC SC has suggested to increase monitoring of rails in the future. To this end, a training manual (Taylor & Dodman, in prep) will include some techniques for monitoring rail populations in African wetlands. Thus, for the majority of populations, no attempt is made at this stage to estimate the size of the populations. However, brief descriptions of the ranges and likely population trends are given, based on Taylor & van Perlo 1998).

***Sarothrura pulchra,* White-spotted Flufftail**

Population *pulchra,* S. Senegal to Nigeria & C. Cameroon
This population is found mainly in the forest zone south of the Sahel to mid Nigeria and into central and southern Cameroon. No population estimate is made. Taylor & van Perlo (1998) give trend as declining for this species.

Population *zenkeri,* SE Nigeria, coastal Cameroon & Gabon
The range of this population is from southeast Nigeria to Gabon, more-or-less following a coastal strip. No population estimate is made. Taylor & van Perlo (1998) give trend as declining for this species.

Population *batesi,* Interior, S. Cameroon
This population is restricted to the interior of southern Cameroon, and is surely less numerous than other populations of *S. pulchra*. No population estimate is made. Taylor & van Perlo (1998) give trend as declining for this species.

Population *centralis,* Congo Basin E to Sudan, W Kenya & NW Tanzania
This population has a wide distribution in Central Africa, south to northern Angola, where it is found in four IBAs at the southern limit of the Guinea-Congo Forests biome (Dean 2001). No population estimate is made. Taylor & van Perlo (1998) give trend as declining for this species.

***Sarothrura elegans,* Buff-spotted Flufftail**

Population *elegans,* S Ethiopia & S Sudan to E South Africa
This population has patchy distribution from Ethiopia and Sudan to South Africa. It is probably at least partially migratory. No population estimate is made. Despite forest destruction, able to colonise degraded habitats and cultivation; probably stable.

Population *reichenovi,* E. Sierra Leone & SE Guinea to Côte d'Ivoire
It is suggested here to define this as a discrete population, geographically isolated from the Central African population. No population estimate is made. Despite forest destruction, able to colonise degraded habitats and cultivation; probably stable.

Population *reichenovi,* S. Nigeria to Democratic Republic of Congo, Uganda, S to N Angola; Bioko
This population has a wide distribution in the forest zone of Central Africa and its periphery. No population estimate is made. Despite forest destruction, able to colonise degraded habitats and cultivation; probably stable.

***Sarothrura rufa,* Red-chested Flufftail**

Population *rufa*, C Kenya, Tanzania, S DR Congo, Angola - South Africa
This is a wide-ranging resident of East and Southern Africa, though it is absent from the drier areas (e.g. most of Karoo, Botswana and Namibia). No population estimate is made. Taylor & van Perlo (1998) give trend as declining for this species.

Population *bonapartii,* Sierra Leone E to Nigeria, Cameroon, Gabon, Congo

This population has a very patchy distribution, with scattered records from various countries in West Africa to Congo, but may well be overlooked in some areas. No population estimate is made. Taylor & van Perlo (1998) give trend as declining for this species.

Population *elizabethi,* Ethiopia; SW CAR & N Democratic Republic of Congo E to Uganda, W Kenya
The Ethiopia birds could merit identification as a separate population. No population estimate is made. Taylor & van Perlo (1998) give trend as declining for this species.

***Sarothrura lugens*, Long-toed / Chestnut-headed Flufftail**

Population *lugens*, Cameroon & Gabon to Democratic Republic of Congo, Rwanda, W Tanzania
This is a little-known population with a seemingly very patchy distribution. It may be rare, but may also be overlooked. No population estimate is made.

Population *lynesi,* C Angola & Zambia
No population estimate is made. R. Stjernstedt (pers. comm.) reports that this species is very common in dambos of NE Zambia, although much less common in other areas of Zambia, and suggests a population estimate of <10,000. There is limited information from Angola. A provisional estimate is given of A, based on R. Stjernstedt (pers. comm.).

***Sarothrura boehmi, S*treaky-breasted Flufftail**

There is one population, *boehmi*, which has a scattered distribution from Nigeria and Cameroon, east to Kenya and south to eastern Angola and Zimbabwe. It is an intra-African migrant, probably breeding during the rains. Certainly, it is present in Southern Africa during the rainy season (austral summer), moving north during the dry season. It reaches northern South Africa as a breeder in wet years, where it apparently only occurs in seasons of unusually high rainfall, when its maximum national population (at known and predicted sites) may be around 130 birds (Taylor 1997). It may be locally common in the extensive wetlands of Zambia.

Fishpool & Evans (2001) give a population estimate of A and a 1% level of 50, which are adopted here. Taylor & van Perlo (1998) give trend as declining. In Southern Africa, numbers may have been affected by habitat loss Harrison *et al.* (1997).

***Sarothrura affinis,* Striped Flufftail**

Population *affinis*, S Sudan S to E Zimbabwe
This population is patchily distributed from S Sudan to the eastern highlands of Zimbabwe. There may be different discrete populations within *affinis*. No population estimate is made. Taylor & van Perlo (1998) give trend as declining for this species.

Population *antonii*, South Africa
This population occurs from the Cape through the uplands of eastern South Africa to the Northern Transvaal. No population estimate is made. Taylor & van Perlo (1998) give trend as declining for this species.

***Sarothrura insularis,* Madagascar Flufftail**

There is one population, *insularis*, endemic to Eastern Madagascar, where it is reasonably widespread and at times abundant in suitable habitat. 11 were recorded at Torotorofotsy wetland in June 2002, where it occurred in grassland within the secondary vegetation, in forest clearings at the edges of the marshes and in islets of marshland forest (Rabarisoa, 2002). F. Hawkins (*in litt.*) suggests the population is possibly in the range of 10,000-100,000. This population estimate (B/C) is adopted here.

***Sarothrura ayresi,* White-winged Flufftail**

So far, only one population of this endangered species is recognised, *ayresi*, recorded from just a handful of sites in upland marshes of Ethiopia and South Africa, with just a scattering of largely unconfirmed records in between. It would seem appropriate to split this species into two populations, one breeding in the central highlands of Ethiopia, another breeding in South Africa. In Ethiopia, *S. ayresi* is known from two sites – the Berga floodplain and Sululta pan. 200 were estimated to occur at Berga in 1997, where breeding has been recorded in August, whist some 10-15 pairs have been recorded breeding at Sululta, from July to October (Ethiopian Wildlife and Natural History Society 2001). The most important site for *S. ayresi* in South Africa is Franklin vlei in KwaZulu-natal, where 40-75 birds have been recorded (Barnes 2001). There is no evidence of

long-distance migration between Ethiopia and South Africa, nor are there any likely connecting sites, though there are some migratory movements, which are not known. At Franklin vlei, *S. ayresi* arrives in November, departing again in March (Taylor 1997). BirdLife International (2000) gives a population estimate of 700 and a trend of declining, which are adopted here, pending further field research.

[UPDATE; SEE WPE5.]

***[Sarothrura watersi,* Slender-billed Flufftail**

There is one population, *watersi*, of this endangered species, which occurs in just a handful of sites in East Madagascar. Only two sites are definitely known – Torotorofotsy, which is the largest and most intact marsh in eastern Madagascar, and marshes just outside Ranomafana National Park (Project ZICOMA 2001). Rabarisoa (2002) found none at Torotorofotsy during a short survey in June 2002. BirdLife International (2000) gives a population estimate of 250-<1000 and a trend of declining, which are adopted here, pending further field research.

***Himantornis haematopus,* Nkulengu Rail**

There is one population, *haematopus,* which occurs in the forest belt from Guinea to Togo and from South Nigeria across the Congo Basin to West Uganda, reaching Cabinda at the coast. There is a gap in distribution (the Dahomey Gap) between birds in West and Central Africa. This is a resident bird of lowland forest. No population estimate is made. Taylor & van Perlo (1998) give trend as declining. Taylor & van Perlo (1998) give trend as declining.

***Canirallus oculeus,* Grey-throated Rail**

Given the lack of suitable habitat from south central Ghana to south central Nigeria, it is suggested here to consider two populations, one in the West Africa tropical forest block, another in Central Africa:

Population *oculeus*, E Sierra Leone to SW Ghana
This population occurs in lowland tropical forest in West Africa, where it is rarely observed. No population estimate is made. Taylor & van Perlo (1998) give trend as declining for this species.

Population *oculeus,* SE Nigeria to Congo & RDC to W Uganda
This population occurs in lowland forest of the Congo Basin; its exact range in Central Africa is not completely known. No population estimate is made. Taylor & van Perlo (1998) give trend as declining for this species.

***Canirallus kioloides,* Madagascar Wood Rail**

Population *kioloides,* Eastern Madagascar
This population occurs widely in the East Malagasy biome, occurring in at least 22 IBAs (Project ZICOMA 2001). Taylor & van Perlo (1998) give trend as declining for this species. Although it would appear to be fairly common within this biome, the trend of declining is retained due to continued pressure on remaining forest.

Population *berliozi,* Sambirano, NW Madagascar
This is an isolated population of northwest Madagascar - the northern extent of the East Malagasy biome. It occurs in one IBA – Montagne d'Ambre National Park and Special Reserve (Project ZICOMA 2001). No population estimate is made. Taylor & van Perlo (1998) give trend as declining for this species.

Population *?*, Bemaraha Tsingy
This is an isolated and probably distinct population, probably in the range of 1,000-2,000 individuals (F. Hawkins, *in litt.*). It may even represent a distinct species, which is restricted to the Bemaraha Tsingy National Park and Strict Nature Reserve in western Madagascar (Project ZICOMA 2001). Despite the protected area status of the park and reserve, Project ZICOMA (2001) give a number of conservation issues for certain sectors of the area, including slash-and-burn, conversion to pasture, wood exploitation, cattle grazing and hunting, so a trend of declining would seem appropriate, based on habitat loss. If indeed this is a good species, then it will surely be given threatened status.]

***[Rallus aquaticus,* Water Rail**

Population *aquaticus*, Europe, N Africa, W Asia E to upper Ob basin (breeding)

This wide-ranging population occurs in North Africa from Morocco to Egypt, but is not found south of the Sahara.]

***Rallus caerulescens,* African Rail**

At present, only one population, *caerulescens,* is recognised, which occurs from Ethiopia to East Democratic Republic of Congo and East Africa (Kenya, Uganda, Tanzania), extending south to South Africa. It also occurring in West Africa with a very patchy distribution. Birds in west and western Central Africa (e.g. Cameroon, Gabon) may merit definition as a separate population, but at present there is not enough information to justify this. No population estimate is made.

Taylor & van Perlo (1998): Probable decline, due to egradation / destruction of wetlands throughout its range, although it is able to colonise artificial wetlands.

***[Rallus madagascariensis,* Madagascar Rail**

There is one population, *madagascariensis,* which occurs in Eastern Madagascar. It occurs in at least four of the IBAs of the East Malagasy wetlands Endemic Bird Area (EBA), and in at least 6 IBAs of the East Malagasy biome, which includes this EBA (Project ZICOMA 2001). F. Hawkins (*in litt.*) believes it possibly occurs in 500-1,000 sites, with some 5-10 individuals per site, yielding a very provisional population estimate of 2,500-10,000. Del Hoyo *et al.* (1996) give a trend of declining.

***Dryolimnas cuvieri,* White-throated Rail**

Population *cuvieri,* Madagascar
This population is restricted to Madagascar. *Dryolimnas* used to occur on Mauritius, though this was probably a resident discrete population (or species). No population estimate is made.

Population *(cuvieri) aldabranus,* Aldabra
Aldabra (white-throated) Rail: This population is considered a full species by some authorities. It is much smaller than *cuvieri* and has also lost the ability to fly. It is confined to Aldabra, where it is found mostly on Malabar, but also on Picard and Polymnie and a few small islets in the atoll's lagoon, with a total population of about 5,000-7,000 birds (Skerrett *et al.* 2001). Skerrett & Rocamora (2001) give an estimate of 1,500-2,700 pairs. This population estimate is somewhat lower than the estimate of 8,000 provided by del Hoyo *et al.* (1996), which is based on the conservation status of the Aldabra rail in 1982 (Collar 1993). Betts (2002) also gives a figure of 8,000, indicating that there was no significant change in the population size during counts in 1999/2000. However, with the population split proposed here and with recent declines on Picard (where this rail has recently been reintroduced) the lower figure and range are adopted here. The population appears, overall, to be stable.

Population *(cuvieri) aldabranus,* Ile aux Cedres, Aldabra
Skerrett *et al.* (2002) indicate that the rails of Ile aux Cedres are different in appearance from those on the other islands, and are also geographically isolated, and may represent a relict form of an original Grand Terre population. It is recommended here to treat this small isolated population on Ile aux Cedres as a discrete population, in order to highlight its conservation status, which is in need of further investigation. The size of the population is not well known, but Skerrett (*in litt.*) guesses that it is likely to be in the low hundreds, around 100-500. Given the small size of the island, this is likely to be a safe range estimate. The population would appear to be stable.

Population *(cuvieri) abbotti,* Cosmoledo, Astove, Assumption
This population is extinct. It used to exist on Cosmoledo, Astove and Assumption, all islands of the Aldabra Group of Seychelles (Skerrett 2001). It became extinct on Assumption by 1937 and was last recorded on Astove and Cosmoledo around 1907-1908 (Fryer 1911). Extinction on Cosmoledo was confirmed in 1981 (Mortimer 1984).]

***Crecopsis egregia,* African Crake**

There is one population, *egregia*, which occurs widely in sub-Saharan Africa. It is a partial or rains migrant, though its movements are not clearly understood. In West Africa it is widely distributed south of the more arid regions of the Sahel, also being found on Gulf of Guinea islands. In East Africa, it is most regular and numerous in the Lake Victoria Basin and in the Nile watershed (Britton 1980). In Southern Africa, it is largely absent from drier areas in the west. It is also widespread in Central Africa. There are limited data of numbers,

and no clear population estimate can be made. However, it is suggested that the population lies between the very broad ranges of 10,000 and 1,000,000, noting that Taylor (1997) estimated 8,000 to occur in South Africa. The population is probably stable.

ADD REF. TAYLOR 1997.

***[Crex crex,* Corncrake**

Population *crex,* W & NW Europe E to NW China & Central Siberia (breeding)
BirdLife International/European Bird Census Council (2000) provide an estimate of the European breeding population of 1,100,000-1,800,000 pairs, yielding a total estimate of individuals of 3,300,000-5,400,000. The main non-breeding area is in Southern / southeast Africa, and it would appear to be a passage migrant in East Africa. In most of Africa, it is generally considered uncommon, even in Southern Africa, although it is, for instance, regular in Zambia's Kafue Flats in January (pers. obs.). There are no substantial records from Africa, where this bird is silent and secretive, so the population is certainly best estimated on breeding data from Europe and further east. However, this bird would surely be recorded more regularly in Africa if the population were as high as the estimate based on breeding data would suggest. Fishpool & Evans (2001) give an estimate of C/D and recommend a 1% threshold of 1,000 birds.

***Rougetius rougetii,* Rouget's Rail**

There is one population, *rougetii,* which is endemic to the highlands of West and Central Ethiopia and Eritrea. It is a species of the Afrotropical Highlands biome. In Eritrea, it breeds in swampy ground on the Central Plateau over 1,800m, occurring in two IBAs – Semenawi Bahri and the Asmara Escarpment, where it has bred at Lake Mandrezien (Coulthard 2001). In Ethiopia, it has been recorded from 11 IBAs, including Guassa (Menz) where it is common, the Bale Mountains National Park where it is 'not uncommon' and Sululta Pan, where it appears to be declining (Ethiopian Wildlife and Natural History Society 2001). No population estimate is made, but the trend of declining, as given by BirdLife International (2000) is supported, as there are a number of ongoing threats at most sites where it occurs, wetlands being well-utilised habitats in Ethiopia.

***Atlantisia rogersi,* Inaccessible (Island) Rail**

There is one population, *rogersi*, which is found only on Inaccessible Island in the Tristan da Cunha group. There were 2,500-5,000 breeding pairs in 1989 on this 14km^2 island, and the population, estimated at 8,400 individuals, is probably at maximum carrying capacity (Rowlands 2001). The population trend is stable.

***Atlantisia elpenor,* Ascension Rail**

This endemic rail of Ascension Island was probably extinct by 1656 (del Hoyo *et al.* 1996), though it may have survived until the introduction of cats in 1815 (BirdLife International 2000).

***Atlantisia podarces,* St Helena Crake**

This endemic rail of St Helena probably became extinct soon after discovery of the island in 1502 (BirdLife International 2000).]

***Amaurornis flavirostris,* Black Crake**

There is one population, *flavirostris*, which is widely distributed in sub-Saharan Africa, except in arid areas of Northeast and Southwest Africa. Rose & Scott (1994) give a population estimate of E, as do Fishpool & Evans (2001), who also provide a 1% threshold of 10,000. There is no recent evidence to warrant revision of this estimate. Certainly, this is a widespread and common species, found in most freshwater wetlands. Van Zegeren & Wilson (1999) estimate 100,000+ to occur at Lake Chilwa and its floodplain.

Although affected by loss of wetland habitats, it appears nowhere under threat and readily occupies artificial wetlands (Taylor & van Perlo 1998).

***[Amaurornis olivieri,* Sakalava Rail / Olivier's Crake**

There is one population, *olivieri*, which is only known from the Bemamba wetland complex in Western Madagascar, though it has very recently been reported from another site nearby (F. Hawkins, *in litt.*). It was found in the marsh of Nosy Ambositra in the Lake Ihotry – Mangoky Delta complex in 1960, but has not been

recorded since (Project ZICOMA 2001). BirdLife International (2000) give an estimate of 50-249 and trend declining. This would seem to be in the right order, but further research in the western wetlands of Madagascar may reveal this species to occur at a few other sites. Lake Bemamba, however, is unprotected and is subject to multiple uses, so the trend of declining is supported.]

***[Porzana parva,* Little Crake**

Population *parva*, Europe & Western Asia (breeding)
This population has a widespread breeding range in Europe and Western Asia. Its non-breeding range includes parts of Africa, where it is most likely largely overlooked. There are probably more records from West Africa than other regions, but even here it is not regularly recorded. Fishpool & Evans (2001) suggest a population estimate of C/D and a 1% threshold of 1000 birds, though Scott (2002) gives a population estimate of D, based on breeding data from Europe and Russia, for which BirdLife International/ EBCC (2000) estimate a total breeding population in Europe of 35,000-140,000 pairs, including 10,000-100,000 pairs in Russia, i.e. around 105,000 and 420,000 individuals. This latter estimate is adopted here.]

***Porzana pusilla,* Baillon's Crake**

[Population *intermedia*, Europe (breeding)
BirdLife International/European Bird Census Council (2000) estimate the European breeding population at 3,700-8,600 pairs (11,100 – 25,800 individuals). Its non-breeding range includes sub-Saharan Africa, where resident birds also occur, so the status of this population in Africa is not clear.]

Population *obscura / intermedia,* Ethiopia, NW, S & E Africa & Madagascar (breeding)
This population is an uncommon resident in Eastern and Southern Africa and in Madagascar, though it may well be overlooked. The birds in Madagascar may well represent a discrete population, but the movements of this species in Africa are poorly understood. It is recommended to use a provisional population estimate in the range B and a 1% threshold of 150.

***[Porzana porzana,* Spotted Crake**

Population *porzana*, Europe / W. Asia (breeding)
This population visits Africa in the non-breeding season, where it is generally only rarely recorded. BirdLife International/EBCC (2000) estimate the total breeding population in Europe (excluding Russia) at 42,000-70,000 pairs, with a further 10,000 to 100,000 pairs in Russia, especially Western Siberia. Taylor & van Perlo (1998) report it to be common in the Senegal River Delta. It is patchily recorded across West Africa, where it may well be largely overlooked. It does not appear to be present in the Congo Basin, and is probably largely a passage migrant in Eastern Africa, reaching as far south as South Africa, though the majority of birds are expected to stay longer in the wetlands of Central Southern Africa, especially Zambia.]

***[Aenigmatolimnas marginalis,* Striped Crake**

There is one population, *marginalis*, which occurs widely in Africa, recorded from as far west as Côte d'Ivoire, in parts of Central Africa, rarely in Eastern Africa and perhaps more commonly in northern areas of Southern Africa. It is rarely recorded, and like other crakes, may well be overlooked. It is an intra-African rains migrant, but its movements are not well understood. It would appear to be absent from much of the Congo Basin, so there may be two populations, one in West Africa, another from eastern Central Africa and Eastern Africa to South Africa. However, there is insufficient knowledge about the species and its migratory movements as yet to consider a population split. Due to the general paucity of records Dodman (2002) provided a very provisional population estimate of <25,000. Taylor & van Perlo (1998) give trend as declining.

***Aphanapteryx bonasia,* Mauritian Red Rail**

This endemic rail of Mauritius became extinct between 1675 and 1700 (del Hoyo *et al.* 1996).

***Aphanapteryx leguati,* Leguat's Rail**

This endemic rail of Rodrigues became extinct around 1730 (del Hoyo *et al.* 1996).]

***[Porphyrio porphyrio,* Purple Swamphen/Gallinule**

Population *porphyrio*, E & S Spain, S France, Sardinia, Morocco, Algeria, Tunisia

Rose & Scott (1997) give a population estimate of B, which is supported here.]

Population *madagascariensis*, Egypt, sub-Saharan Africa, Madagascar
Fishpool & Evans (2001) give a population estimate of A/B and a 1% threshold of 100. Given the wide distribution of this population and regularity of records, this is thought too be too low. It is a common resident in much of Southern Africa, found in a variety of freshwater wetlands, including in urban areas. It is generally much scarcer in Eastern Africa, probably absent from parts of the Congo Basin and is rather patchily distributed in West Africa, where it is locally common. It also occurs in wetlands of Madagascar.

Brouwer & Mullié (2001) report of 597 at Kokoro, Niger in February 1997, increasing to 775 by April 1997. However, no other similar concentrations have been recorded from elsewhere in the country. Some 250 were recorded in August 1988 in Lac Débo and Lac Walado Débo in Mali's Inner Niger Delta, where it then appeared to be absent until February 1999, peaking in May 1999 with 310 birds, then largely disappearing again (van der Kamp & Diallo 1999). One of the highest counts is of 1,255 at Mare d'Oursi in Burkina Faso in January 1998 (Dodman *et al.* 1999). It is locally common in a number of urban wetlands, including at Johannesburg, Lomé and Dakar (pers. obs.) and is locally frequent in the Central River Division of The Gambia from April to October (Barlow *et al.* 1997). 2,500 were reported from Lake Chilwa, Malawi in 1996 (Dowsett-Lemaire *et al.* 2001).

This population is at least partially migratory or nomadic, presumably moving in response to rain and local conditions. Despite its large size and raucous call, it may well be overlooked in parts of Africa. Based on its widespread occurrence, especially in Southern Africa, its apparent adaptability and tolerance to man, a new population estimate is proposed of C (25,000-100,000) with a mid-point 1% threshold of 500.

***[Porphyrio coerulescens,* Réunion Gallinule**

This extinct species is often considered conspecific with *P. porphyrio*, though BirdLife International (2000) considers that its rather different montane forest habitat on Réunion makes this unlikely. It probably became extinct here around 1730 (BirdLife International 2000). A population of gallinules, possibly this species, was also found in Seychelles. There are written records of 'poules bleues' from the 18th Century, and place names also in Seychelles (Skerrett *et al.* 2001).]

***Porphyrio alleni,* Allen's Gallinule**

There is one population, *alleni*, which is widely distributed in Africa, also occurring in Comoros and Madagascar. It is an intra-African migrant, though its movements are poorly understood. There are some high counts from Southern Africa; over 1,000 have been recorded in the Kafue Flats, Zambia (pers. obs.), whilst van Zegeren & Wilson (1999) estimate 200,000+ in Malawi's Lake Chilwa and floodplain, though this estimate is based on extrapolations. At times, large flocks may suddenly appear, especially in reedbeds and flooded grasslands, but often do not stay in one place for long. It is most numerous in Southern Africa during the southern summer. It appears to be widespread in the Congo Basin / Central Africa, though its status here is not well known. It is fairly widely distributed in West Africa, but there do not tend to be high counts anywhere.

Dodman (2002) provided a provisional population estimate of C/D (25,000 – 1,000,000). There is no clear information on the trend of this gallinule.

Trend: Destruction and modification of wetlands throughout its range mist have affected its numbers adversely (Taylor & van Perlo 1998).

***[Gallinula nesiotis,* Tristan Moorhen**

This species occurred on Tristan Island in the Tristan da Cunha group, and is now extinct. The modification of vegetation by grazing livestock may have contributed to its extinction between 1873 and 1906 (Rowlands 2001). *G. comeri*, considered by some as a sub-species of *G. nesiotis*, has since been introduced to Tristan Island (see below).

***Gallinula comeri,* Gough Moorhen**

Gough moorhen is species is considered by some as a sub-species of *G. nesiotis,* the nominate form being extinct. Gough moorhen is naturally endemic to Gough Island, Tristan da Cunha group, where there were some 2,500 pairs in 1993. It was introduced to Tristan Island in 1956, where there were some 3,000 pairs in 1993 (Rowlands 2001). BirdLife International (2000) gives a population estimate of 4,500-6,500, from which a

1% threshold of 55 has been derived, though Fishpool & Evans (2001) use a 1% threshold of 75. Wetlands International (2002) gives an estimate of 6,750-9,750, based on 2,250-3,250 pairs given in del Hoyo *et al.* (1996). A new population estimate is proposed of 5,500 breeding pairs based on Rowlands (2001), or 13,500 individuals, with a 1% level of 135. The 1% threshold however is relatively meaningless as both islands where it now occurs each support about half the population, thus both automatically qualifying as internationally important sites for this species.]

***[Gallinula chloropus,* Common Moorhen**

Population *chloropus*, Europe, N Africa (breeding)
The European breeding population has been estimated at 850,000-1,500,000 breeding pairs (BirdLife International/European Bird Census Council (2000). The non-breeding range of this population includes sub-Saharan Africa, where *meridionalis* also occurs. The main non-breeding area in Africa is probably West Africa, from Mauritania to Chad

Population *meridionalis,* Sub-Saharan Africa, St. Helena
This population is widespread in sub-Saharan Africa, especially in Southern Africa. It is not common in the forest block of Central Africa, and is much less common in West Africa than further east and south. Its distribution in West Africa is patchy, occurring also in Gulf of Guinea islands (Borrow & Demey 2001). This was a breeding species in Cape Verde, but it no longer breeds here, presumably due to habitat loss (Hazevoet 1995). It apparently arrived in St. Helena of its own accord, after the arrival of people (Rowlands 2001).

Fishpool & Evans (2001) give a population estimate of C/D and a 1% threshold of 1000. This is though to be too low, given the widespread occurrence in Southern Africa and parts of Eastern Africa of this population. A new population estimate is proposed of D, with a 1% threshold of 5,000. This could even be an under-estimate.

Population *pyrrhorrhoa*, Madagascar, La Réunion, Mauritius, Comoros
This population occurs in Madagascar and Comoros, where it is locally common. It is rare in Réunion and also occurs on Mayotte, where it was introduced (Poillot & Salamolard, 1999). No population estimate is made.

Population *orientalis*, Seychelles, Andamans, S Malaysia, Greater & Lesser Sundas to Philippines & Pulau
In Seychelles, this population is resident in the granitic islands, where it is only common in areas that are safe from cats and rats, though the greatest long-term threat is from wetland loss (Skerrett *et al.* 2001). There is some movement between islands, with ringing recoveries of immatures from Cousine on Cousin and Praslin (Skerrett *et al.* 2001). The population in Seychelles is surely discrete, once considered an endemic race *seychellarum*. It probably numbers in the low thousands. No attempt is made here to estimate the entire population, which occurs largely in Asia.]

***Gallinula angulata,* Lesser Moorhen**

There is one population, *angulata*, which is found widely in sub-Saharan Africa, apart from arid areas, though it is not regularly recorded, and probably often overlooked. It is an intra-African migrant, though its movements are not well understood. The somewhat erratic records might suggest a degree of nomadism. It is present in wetlands in Southern Africa during the rainy season (austral summer). A staggering estimate of 600,000+ has been given for Lake Chilwa, Malawi (van Zegeren & Wilson 1999). It is apparently widespread in Central Africa, but records are again limited. Given the right conditions, it can be numerous at certain sites, often for quite short periods.

Fishpool & Evans (2001) gave a provisional broad population estimate of C/D (25,000 – 1,000,000).

***Fulica cristata,* Red-knobbed/Crested Coot**

Population *cristata*, Spain, Morocco
This small population is resident in South Spain and North Morocco, and formerly bred in Algeria, where it is probably no longer occurs. Rose & Scott (1997) give a population estimate of A, which is based on Cramp & Simmons (1977); Fishpool & Evans (2001) use a 1% threshold of 50 for North Africa. Green *et al.* (2002) report that observed trends for wetland loss in Morocco are having a strong impact on this population, which is highly dependent on mountain lakes and other natural low salinity wetlands. During surveys in the 1990s, Green *et al.* (2002) found *F. cristata* to be breeding at seven sites, with a possibility of breeding at one additional site, whilst maximum figures in the 1990s per site (breeding and non-breeding) produced a total of

7,762 birds in Morocco, including 3,000 at Marais du bas Loukkos. The population in Southwest Spain is small. J. Amat (*in litt.*) summarises breeding data from Spain, where there appear to be between 70-84 breeding pairs (210-252 birds) in 2001/2002, rounded to 200-250 individuals. A new population estimate is proposed of 7,000-9,000 birds, and a 1% threshold of 80. Trend is proposed as declining, due to the continued rate of wetland loss in Morocco, as documented by Green *et al.* (2002).

Thévenot et al. give 200-300 pairs for Maroc. If use this, estimate is 800-1150.
Green (2000): 5,000.
CHECK WITH A GREEN. [update text]

Population *cristata*, NE, E & S Africa, Madagascar
This bird may be found in large numbers on open water bodies and also in small numbers on ponds and small dams. It is a common wetland bird from Northeast Africa down to South Africa, also in Madagascar. In Central Africa, it is only found east of the main forest block. 2,552 were recorded in Ethiopia in the 1998 January AfWC, whilst there were also 19,050 in Southern Africa, including 13,717 in South Africa and 3,273 in Zambia; however there were 52,208 in Southern Africa in July 1997, including 51,078 in South Africa (Dodman *et al.* 1999). 4,900 were counted at Lochinvar National Park, Kafue Flats, Zambia in January 2001 (ABC Vol. 9 No.1 2002). Fishpool & Evans (2001) give a population estimate of D and a 1% threshold of 5,000. This estimate is adopted here, but a higher 1% level is proposed of 10,000.

UPDATE: Baker (1997) estimates a non-breeding population of 15,000 – 20,000. Parker (1999) estimated >10,000 at times in southern Mozambique. IWC January counts under 100,000, though 106,946 in South Africa in July 2003. 1,600 at Turkana in February 1992 (Taylor & van Perlo 1998). Abundant in Ethiopia, with past records of about 10,000 at Lake Adele, though this lake is now almost dry (Ash & Atkins 2009). Maximum IWC count in Kenya was in January 2011, with 35,740, including over 30,000 at Lake Ol'Bolossat.

East: 100,000 - 300,000
Sthn.: 150,000 – 500,000
[update text]

***[Fulica atra,* Common Coot**

Population *atra*, Black Sea, Mediterranean (non-breeding)
Rose & Scott (1997) give an estimate of 2,500,000 birds. Fishpool & Evans use a 1% level of 40,000, based on Heath & Evans (2000). This population reaches West Africa during the non-breeding season, where it can be locally common. Two pairs bred in North Senegal in January 2001 (Borrow & Demey 2001).

***Fulica newtoni,* Mascarene Coot**

The Mascarene coot was endemic to Réunion and Mauritius. It was last reported on Réunion in 1672 and on Mauritius in 1693 (BirdLife International 2000).]

11. [Finfoot and Jacana

***Podica senegalensis,* African Finfoot**

Population *senegalensis,* West Africa to Uganda, NW Tanzania & Ethiopia
This population has a wide range from The Gambia and Senegal through the forest zone of Central Africa to western Uganda, Northwest Tanzania and Ethiopia. It occurs on quiet well-wooded rivers and streams and on lakes and lagoons with fringing vegetation. This population is easily overlooked. It may be quite common in some areas, but at this stage there is not enough information available to put forward a clear population estimate. However the range surely falls within C/D (25,000-1,000,000), so this provisional range is given, in need of improvement. A working 1% level is also applied of 1,000.

Population *camerunensis,* S. Cameroon, Gabon & Bioko, Democratic Republic of Congo (?)
This race is much darker than *senegalensis*, although the ranges do overlap. There are intermediates in South Cameroon (Borrow & Demey *et al.* 2001). The population size is presumably much smaller than *senegalensis* but there is fairly extensive good habitat available for it, especially in Gabon. Due to its somewhat restricted range, a very provisional population estimate is made of B/C, with a working 1% level of 250.

Population *somereni,* Coastal East Africa to the central highlands

This population occurs on the East African coast, for instance on the Mwena, Mwachi, Galana and Tana rivers of coastal Kenya, inland to the central highlands and on Mount Kilimanjaro and the Usambaras in Northeast Tanzania (Britton 1980). It is generally uncommon, though may be overlooked in certain areas. It is listed as Vulnerable on the East African Regional Red List of birds (Bennun & Njoroge 1996), and occurs in at least 6 IBAs in Kenya (Bennun & Njoroge 1999). Tanzania is unique in supporting three different populations of P. senegalensis – *somereni* in the Northeast, *senegalensis* in the Northwest and *petersii* in the Southwest. Based on its regionally vulnerable status and somewhat restricted range, a very provisional population estimate for *somerini* is given of A/B and a 1% threshold of 100. Although this population is regionally vulnerable, there is no evidence at present of decline, (though declines may well have occurred in the past).

Population *albipectus,* Angola
This is an isolated population with a rather unknown status. It is a 'not uncommon resident' at scattered localities in the interior, from Huila to Bengo, north to Cabinda, and east to northern Lunda Norte (Dean 2000). Given the reported impacts of prolonged civil war in much of Angola and the collection of firewood and cultivation of crops in many protected areas (Huntley & Matos 1994), it is suspected that the population has been and possibly still is in decline. A very provisional population estimate of A is given, pending further information, with a 1% threshold of 50 birds.

Population *petersii*, E Angola, Caprivi, N Botswana to Zimbabwe, SE Democratic Republic of Congo, Zambia, SW Tanzania to Mozambique to E S Africa
This population is centred more-or-less around Zambia, extending to Southwest Tanzania in the north and to the Cape of South Africa in the south. It is a generally uncommon resident in this region where appropriate habitat is somewhat limited, but it is a relatively common bird of the quiet backwaters of the Zambezi and other rivers. A very provisional population estimate is given of B/C, with a working 1% level of 250.

***Actophilornis africana,* African Jacana**

There is one population, *africana*, which occurs widely in sub-Saharan Africa, being generally common in a variety of wetland habitats, especially in lakes and ponds in all but the most arid areas. It is largely resident, though some movements do occur, presumably according to local conditions. It would appear to be seasonal in the Congo Basin. It is counted regularly in the AfWC: for example in January 1998 there were 4303 in West Africa from 9 countries, 899 from 2 countries of Central Africa, 2805 from 4 countries in East Africa and 2241 from 6 countries of Southern Africa (Dodman *et al.* 1999).

Fishpool & Evans (2001) give a population estimate of E and use a 1% threshold of 10,000 for the IBA Africa Programme, which is adopted here. Given this species' wide range and adaptability, also its ability to live in wetlands where man is also active, a stable trend is proposed.

***Actophilornis albinucha,* Madagascar Jacana**

There is one population, *albinucha*, which is found in northern and western Madagascar. It is a bird of the West Malagasy wetlands Endemic Bird Area, where it occurs in at least 12 IBAs. It does not appear to be particularly threatened, though it has a fairly restricted range, and some of the wetlands it inhabits are under pressure of over-exploitation. Thus, the trend of declining, and also the population estimate of A given by Rabarisoa (*in litt.)* are supported here. 147 were counted during the January 1998 AfWC, and 58 in July 1997, when less sites were covered (Dodman *et al.* 1999). Fishpool & Evans (2001) also give an estimate of A and use a 1% threshold of 50 birds.

***Microparra capensis,* Lesser Jacana**

There is one population, *capensis*, which is fairly widely distributed in sub-Saharan Africa from Mali in the west (though there are records also from Mauritania) to Ethiopia in the east and down to the Caprivi Strip, Botswana and Zimbabwe, also occurring in coastal wetlands of Mozambique and Natal, South Africa. Over 20 were recorded in Mali's Inner Niger Delta in May 1999, though it was probably overlooked during these surveys (van der Kamp & Diallo 1999). It is common throughout much of the Bangweulu Swamps of Zambia, though not so in the Kafue Flats (pers. obs.). Fishpool & Evans (2001) propose a population estimate of C and a 1% level of 500, which are supported here.]

12. Waders / Shorebirds

[***Rostratula benghalensis,*** **Greater Painted Snipe**

The Greater Painted Snipe is widely distributed in sub-Saharan Africa and Madagascar, also occurring in the Nile Delta, with occasional records from along the Nile in southern Egypt. Traditionally, the species has been considered as one overall population. However, recent assessments by Dodman & Underhill (in review 2008) suggest that it is appropriate to identify four populations in Africa:

- the lower Nile in Egypt
- Sahelian Africa from Senegal to Somalia, south to Southern Africa
- Madagascar
- South-western Cape Province, South Africa.

The populations of the lower Nile, south-western Cape Province and Madagascar are largely sedentary, although there are some movements between the lower Nile and nearby wetlands, as evidenced by records in Israel and a single passage bird at Sharm el Sheikh on Egypt's Red Sea (Miles 1998). The populations of the lower Nile, Madagascar and the south-western Cape are all rather small, but there is not enough data to suggest numerical estimates. Population estimates of A (<10,000) are therefore suggested for each; an assessment of the status of all three smaller populations would be very worthwhile. The larger population of Sahelian Africa is a partial intra-African rains migrant. It is largely sedentary in some areas of reliable rainfall or permanent wetlands, but at other locations it occurs only erratically or seasonally.

Population *benghalensis*, lower Nile, northern Egypt
It is a fairly common breeding resident in parts of the Nile Delta and lower Nile Valley, Wadi el Natrun, the Faiyum and Suez Canal area, also occurring locally upriver in Egypt in very small numbers (Goodman & Meininger 1989). The population is threatened by wetland degradation and drainage (Baha El Din 1999), but it is not known if it is in decline or not. A population estimate of A (<10,000) is proposed and a 1% threshold of 100 birds.

Population *benghalensis*, Madagascar
The Greater Painted Snipe is reasonably common in certain areas of Madagascar (Young 2003), though its distribution is very patchy, and it is largely absent from the drier south. A population estimate of A (<10,000) is proposed and a 1% threshold of 100 birds.

Population *benghalensis*, Sub-Saharan Africa
Data from the AfWC does not contribute readily to estimating the population size of this species, due to its skulking behaviour. Baker (1996) considers that there are likely to be low thousands in Tanzania during any given month, noting that wetlands of Dar es Salaam probably hold >100 on a regular basis (Baker *in litt.* 2008). Fishpool & Evans (2001) estimate a population range of C/D (25,000-1,000,000) for the whole species, and use a 1% threshold of 1,000 for the identification of IBAs in Africa. Wetlands International (2006) adopts the same estimate for the species, though does not provide a threshold given the wide range of the estimate. The estimate of C/D seems too high for the Sahelian Africa population, given the relatively low numbers recorded at even well-documented sites, whilst it does not appear to be congregatory in Africa's extensive floodplains. It is certainly widespread, but never seems to be common. An estimate for this population of C (25,000-100,000) is therefore proposed, and a 1% level of 1,000 birds.

In most parts of its range the Greater Painted Snipe is rather uncommon, but it is easily overlooked and may quite reliably be found in suitable habitat in some areas. Baker & Baker (2008) consider that concentrations at several urban sites in Tanzania indicate it may be far more common along the coast than records suggest. Its preferred habitat on the Cuanza River floodplain in Angola is areas with exposed mud, shallow water and clumps of vegetation, though its distribution in the country is scattered (Dean 2000).

Population *benghalensis*, South-western Cape, South Africa
The population in the south-western Cape is in decline due to a gradual loss of wetlands (Barnes 2000), and may even be on the verge of extinction (Hockey & Douie 1995). The Heuningnes River and Estuary System IBA supports some 50-60 birds (Barnes 1998b). An estimate of A (<10,000) is proposed (with a 1% threshold of 100 birds), though the actual number may be much less than the higher limit of this range.

Dromas ardeola, **Crab Plover**

There is one population, *ardeola*, which occurs widely from the Red Sea, along the East African coast and in the Indian Ocean, though breeding probably only occurs in northern parts of its range, especially around the

Arabian Peninsula. Breeding sites in Africa include islets of northern Somalia, the Dehalak Archipelago of Eritrea and the Suakim Archipelago of Sudan. There were some 1,000 breeding pairs at Ceebaad and Sacaada Diin islands off northern Somalia earlier in the first half of the 19th century (Archer & Goodman 1937) but there is no recent information. Only small numbers breed at Suakin (Robertson 2001), though there are several breeding colonies in the Dehalak and Howakil archipelagos of Eritrea, as well as areas of the continental coastline, with a breeding population of some 5,000-6,000 pairs (De Marchi *et al.* 2008). There are also three known colonies just across the Red Sea in the Farasan Islands, Saudi Arabia (Scott 1995).

The Crab Plover is a widespread non-breeding visitor in the Indian Ocean, and can be found along the East African coastline regularly as far south as Mozambique and along coastlines of Madagascar, the Iles Eparses, Comoros and Seychelles. It is probably easier to estimate the population, at least in Africa, according to non-breeding data, as the underground nesting colonies of this unusual wader are difficult to find, especially along the remote and little-visited coastlines, islands and archipelagos of the Red Sea.

One of the highest counts from East Africa is of some 3,000 on the Msangamkuu / Msimbati flats in extreme southeast Tanzania in January 1968 (Britton 1980). 6,059 were recorded in the AfWC in Tanzania in January 1998, mostly from Zanzibar and Pemba (Dodman *et al.* 1999, Geene 2001). 3,402 were recorded in the Rufiji Delta in 2000, whilst a few other sites in coastal Tanzania also meet the IBA-Africa threshold of 300 for this species (Baker & Baker 2002). In Kenya, over 800 were at Kiwayuu Island in the Lamu Archipelago of Kenya in November 1996 (Nasirwa *et al.* 1998), whilst up to 800 have also been recorded at Mida Creek (Seys *et al.* 1995). The Crab Plover is a regular visitor to much of the Somali coastline (Ash & Miskell 1998, *pers. obs*.).

In Seychelles, largest numbers occur inside the lagoons of Aldabra and Cosmoledo, with flocks of 1,000 or more recorded at each, with the atoll-wide population of Aldabra alone up to several thousand (Skerrett *et al.* 2001). Mortimer & Constance (2000) recorded flocks numbering some 500 birds on Cosmoledo in December 1996. Betts (2002) recorded up to 2,800 from September to May in Aldabra, peaking in January to April, whilst more recently Pistorius & Taylor (2008) recorded 3,000-3,800 from the Aldabra atoll. There were some 1,500 at St. François Atoll in the Alphonse Group in late January 2001, declining to 650 by May (ABC Vol.8 No.2 2001). Altogether, at least 6,000 are likely to spend a good part of the non-breeding season in Seychelles. Crab Plovers are also regular visitors to the remote island group of Chagos (Sheppard & Topp, undated).

The Ambavanankarana wetlands of Northwest Madagascar and the Baie de Baly further south along the coast support the largest congregations of Crab Plover in the country, with 902 and 1,411 recorded respectively in 1999 and 2001 (Project ZICOMA 2001, Dodman & Diagana 2003).

Overall, there would appear to be at least 35,000 non-breeding birds in Africa south of the Red Sea and on associated islands (approximate figures being >5,000 for Somalia (probably much higher), >3,000 for Kenya, about 15,000 for Tanzania, >1,000 for Mozambique, >6,000 for Seychelles and >5,000 for Madagascar and all other islands).

Further, a reasonable number of birds stay within the Red Sea during the non-breeding season. 352 were recorded on the mudflats around Djibouti city in February 2001 (Welsh *et al.* 2001), whilst crab plover is found throughout the year in the Dehalak archipelago of Eritrea. De Marchi *et al*. (2008) estimated 4,800-6,500 in the archipelagos and along the Eritrean coastline in 2002-2004 during the non-breeding season.

It would thus seem that there is a non-breeding population in Africa of at least 45,000 individuals, and an Africa estimate is proposed of 40,000-50,000. Rose & Scott's (1997) estimate of 43,000 based on Perennou *et al.* (1994) was too low, whilst Scott (2002) proposes a figure of 20,000-30,000 for Asia. This results in a population estimate of 60,000-80,000. It would seem likely that the population is stable, given its wide range and unique breeding adaptation, but there is not enough information to determine trends. Stroud *et al.* (2004) indicate that the most serious threat is from pollution of coastlines, especially from the oil industry. There are also reports of predation in some areas, including by domestic cats and by man. Fishermen, for instance, collect eggs at some colonies in the Dahlak Archipelago of Eritrea (De Marchi *et al.* 2006).

***Haematopus ostralegus,* Eurasian (Pied) Oystercatcher**

Population *ostralegus*, Europe, North-west Africa (non-breeding)
Stroud *et al.* (2004) give an estimate of 1,020,000 birds and a trend of increasing. However, the population now appears to be in decline overall, due in particular to winter mortality in the Wadden Sea, most likely as a result of reduced food supplies due in part to over-harvesting of mussels (Ens & Smit 2008). This population is a common non-breeding visitor to coastal Northwest and West Africa, as far south as Guinea-Bissau, and occurs further south and east along the coastline to Ghana and Nigeria, but in much lower numbers. Frikke *et*

al. (2002) estimated 4,500 in Guinea-Bissau's Bijagós Archipelago in January 2001, though 8,250 were estimated to occur here in 1994. Also in January 1991, 6,857 were recorded in the Banc d'Arguin, Mauritania (C. Smit, *in litt.*), giving a combined estimate of 11,357 from these two sites alone. In January 1998, 3,811 were recorded in Senegal, mostly from the Sine Saloum Delta, 770 in Mauritania, 110 in The Gambia, 38 in Guinea and 1 in Ghana (Dodman *et al.* 1999). Van der Winden *et al.* (2007) recorded 230 in coastal wetlands of Sierra Leone in January-February 2005. In January 1997, numbers recorded were higher in Mauritania, where there was much greater coverage, and in Senegal, with respective totals of 5,084 and 6,089 (Dodman *et al.* 1997). Probably at least 25,000 are regular non-breeding visitors to coastal West Africa – a relatively small proportion of the population.

Population *longipes*, South-west Asia, Southern Asia & North-east Africa (non-breeding)
Stroud *et al.* (2004) give a population estimate of 100,000-200,000. In Africa, this population regularly reaches coastal Tanzania, but is uncommon further south, with small numbers regularly reaching coastal Mozambique and South Africa. There were 436 in Tanzania in January 1998, mostly from Zanzibar and Pemba (Dodman *et al.* 1999), whilst small numbers have been regularly recorded in the limited AfWC surveys in Eritrea. This population occurs along the Somali coast mostly singly or in small groups (Ash & Miskell 1998), but there is little information on overall numbers. Eurasian Oystercatcher is a vagrant to the granitic islands of Seychelles (Skerrett *et al.* 2001). Overall, data from Africa is rather weak for this population, its range spanning some rather remote and little-visited areas. Ens & Smit (2008) consider that the population overall is probably decreasing, noting declines in European Russia, Ukraine and Bulgaria.

***Haematopus meadewaldoi,* Canarian Black Oystercatcher**

There is one population, *meadewaldoi*, endemic to the eastern Canary Islands, which probably became extinct in the 1940s (BirdLife International 2000), when it was last reported by fishermen from the isle of Alegranza (Clarke 2006). It was last collected on the island of La Graciosa in 1913. There are reports of black oystercatchers from Tenerife (western Canaries) in July 1968 and February 1981 (Hayman *et al.* 1986) and from Senegal in February 1970 and December 1975 (Barlow *et al.* 1997). These may have been vagrant *H. moquini*, although the nearest breeding birds of this largely sedentary species are in south-western Africa. Whilst it is of interest to hold a glimmer of hope for this species, it is almost certainly extinct, most likely due to over-harvesting of inter-tidal invertebrates, human disturbance, and predation by rats and cats (Hockey 1987).

***Haematopus moquini,* African Black Oystercatcher**

There is one population, *moquini*, which is endemic to the coasts of Southern, mainly South-western Africa, breeding in Namibia and South Africa. There has been an estimate of 4,800 birds since the 1980s (e.g. Hayman *et al.* 1986). Simmons (*in litt. 2001*) suggested the population to be slightly higher than this, >5,000, based on a recent estimate for Namibia of about 950 birds (Simmons & Roux 2001), and subsequently from all Namibian wetlands counts of 1,100 birds - higher than previously thought. Du Toit *et al.* (2002) indicates that the population estimate of 4,800 is a minimum count as surveys on which this figure was based were not dedicated oystercatcher surveys; in addition, numbers at (protected) islands off the South African west coast have increased since the mid-1980s (e.g. at Robben Island from 40 in 1977 to 181 in 2002). Du Toit *et al.* (2002) also mention increases on certain mainland coastline sections, with increases along a 27-km section of coastline in the Eastern Cape from 70 in 1979, to 94 in 1983, to 212 in 1994, and to 310 in 2001.

Dodman (2002) provided a population estimate of 5,000-6,000, whilst noting that an up-to-date census is an urgent requirement (Du Toit *et al.* 2002). Unpublished data of the Oystercatcher Conservation Programme suggest the population is probably >6,000 (Hockey *et al*. 2005). Increases in the population are due to improved protection at breeding islands and the decline of the guano industry, also to the invasion of the coastline by the alien Mediterranean Mussel *Mytilus galloprovincialis*, contributing to an increase in food supply and breeding success (Hockey & Van Erkom Schurink 1992).]

***Himantopus himantopus,* Black-winged Stilt**

Population *himantopus*, Sub-Saharan Africa, excluding Southern Africa
Stroud *et al.* (2004) give an estimate of D for sub-Saharan Africa, whilst Fishpool & Evans (2001) give an estimate of C/D and use a 1% threshold of 1,000 for the Africa IBA programme. The population size is rather difficult to estimate, especially in West and East Africa, where non-breeding birds from Europe and Asia are present during the northern winter – this being the main waterbird census period in Africa.

In East Africa, this population is widespread but rather local, breeding in small numbers at several inland and coastal sites (Britton 1980). There were 3,120 at Lake Nakuru in January 1991 and 2,140 in January 1992

(Bennun & Njoroge 1999), this being the only site in Kenya to currently meet the IBA threshold of 1,000. In January 1995, 20,643 were recorded from East Africa, including 16,100 during a major survey of Tanzania (Dodman & Taylor 1995). This included 8,367 at Lake Manyara and 2,613 at Ngorongoro Conservation Area (Baker & Baker 2002). 4,000 have been recorded at the Abijatta-Shalla Lakes National Park (Ethiopian Wildlife and Natural History Society 2001).

This population is largely absent from the Central Africa forest block. In West Africa, it is widespread, breeding as far west as Sine Saloum, Senegal (pers. obs.), whilst there is also a small breeding population on the island of Sal in Cape Verde, established since the 1960s (Hazevoet 1995). Brouwer & Mullié (2001) give an average national population estimate between 1994 and 1997 for Niger of 27,403, but this data is based largely on January counts, when up to three populations may all be present in Niger. There were 24,758 birds recorded in the January 1998 AfWC in West Africa from all 11 participating countries, plus 852 in Cameroon, 2,533 in East Africa and 2,611 from seven countries of Southern Africa (Dodman *et al.* 1999). Numbers, and coverage, were significantly less in the July 1998 count, though surely a reasonable proportion of January birds were breeders from Europe and other areas of the Western Palearctic.

It is likely that East Africa supports the largest numbers of this population, though, despite its widespread occurrence, there is a general lack of records of large flocks.

Dodman (2006) considered that the estimate of D (100,000 – 1,000,000) provided by Stroud *et al.* (2004) is the right range, providing a good minimum figure of 100,000, but that the upper limit seemed too high. There are likely to be <50,000 resident in West Africa, <100,000 in Eastern Africa and <50,000 in Central and Southern-Central Africa. This gives a maximum of 200,000. Thus, a population estimate is proposed of 100,000-200,000.

Population *himantopus (meridionalis)*, Southern Africa
Tree (1997) estimated there to be 10,000-20,000 birds resident in Southern Africa (south of the Zambezi and Cunene rivers), with an increasing trend and expanding distribution range. Underhill *et al.* (1999) provide a more recent estimate of 15,000-30,000, which is adopted here. The maximum July count of the AfWC for the sub-region is 9,430 birds in July 2000 (including 469 birds in Zambia, north of the supposed population limit of the Southern Africa population), with a notable 5,600 at Walvis Bay, Namibia and 3,809 recorded in South Africa (Dodman & Diagana 2003). In Botswana, there appear to be far fewer birds in the large northern wetlands, such as the Okavango Delta than in wetlands of the southeast, many of which are artificial (Tyler 2001). This form has been described as *meridonalis,* though this is not widely accepted. The 'dividing line' between this population and the larger resident population of *himantopus*, which occurs widely in the rest of sub-Saharan Africa (see above) is not clear. It is most likely that birds in southern Zambia and quite possibly further north are part of the same population, also birds of southern Mozambique.

The population has been increasing steadily since the early 1900s, mainly due to the expansion of artificial wetlands, with colonisation as a breeding species in Namibia occurring in the 1950s, significant increases in the Western Cape of South Africa in the 1960s and on Zimbabwe's central plateau in the 1970s (Hockey *et al.* 2005).

[Population *himantopus*, Madagascar
Adult Black-winged Stilts in Madagascar all have white heads and thus seem to be distinct from African stilts, at least at the population level (F. Hawkins, *in litt.* 2002). There were 521 recorded in Madagascar in January 1998 (Dodman *et al.* 1999). F. Hawkins (*in litt.* 2002) suggests that a reasonable estimate might be 5,000-10,000 based on distribution; it is common in the west, where there are several fairly large centres with probably several hundred pairs, whilst it is sparse in the east and south. A mid-point 1% level of 75 is proposed.

Population *himantopus*, Western Europe & West Mediterranean (breeding) and South-west Europe & West Africa (non-breeding)
Stroud *et al.* (2004) give a population estimate of 76,000 based on Thorup's (2002) estimate of 23,662-27,242 breeding pairs in Europe (71,000-82,000 individuals), which was adopted in *WPE3*. This estimate includes 400-500 breeding pairs in Tunisia in the 1970s (based on Cramp & Simmons 1983), but would not appear to include breeding colonies from other Northwest African countries. 'Large numbers' of Black-winged Stilt nest at Marais de la Macta in Algeria (Coulthard 2001), where 700 birds were present in summer 1977, with some breeding (Isenmann & Moali 2000). This species also breeds in Morocco, where sometimes thousands may breed (Cramp & Simmons 1983). Thévenot *et al.* (2003) detail numerous breeding sites in Morocco, though numbers breeding vary between years. A new breeding population has also recently become established on Lanzarote in the Canary Islands (Clarke 2006). The earlier population estimate could thus warrant increasing

by some 2,000-3,000 pairs (6,000-9,000 birds) to account for these additional breeding birds of this population. However, national estimates from BirdLife International (2004) suggest a slightly smaller population in Western Europe (19,000-26,600 pairs) than earlier estimates, so the estimate of Stroud *et al.* (2004) should remain, but noting its inclusion of all breeding birds in North-west Africa. Overall, the population is probably stable.

Population *himantopus*, Central & Eastern Europe - Eastern Mediterranean (breeding)
Birds of this population breed from the Eastern Mediterranean north to Ukraine and Russia north-east of the Black Sea. The non-breeding range in sub-Saharan Africa is not clearly defined, but is presumed to focus on Sahelian wetlands of the Lake Chad Basin. Although several wetlands in this area are counted regularly in the AfWC, stilts in this region will also include birds from the sub-Saharan Africa breeding population. The population estimate of 23,000-44,000 given by Stroud *et al.* (2004) is based on breeding data, with an unknown population trend.

Population *himantopus*, West-Central Asia (breeding)
This population reaches North-east Africa to Sudan. There is limited information on its status in Africa, where the main non-breeding quarters are not well defined. Stroud *et al.* (2004) provide a population estimate of 20,000-50,000 based on breeding data, trend unknown. There are potentially important non-breeding sites for this population, for instance in Ethiopia and Sudan.]

***Recurvirostra avosetta,* Pied Avocet**

Population *avosetta*, Southern Africa north to Zambia
This population breeds in Namibia, Botswana and South Africa, and extends as a non-breeding visitor northwards into Angola, Zimbabwe, Zambia, Malawi and Mozambique. There are three reports of breeding in western Zambia, whilst most records of visiting birds in Zambia are from mid-May to February (Dowsett *et al*. 2008). Tree (1997) estimated the Southern African population as 10,000-20,000. Quite large congregations are regularly recorded in the region. At times there are large counts from northern Botswana, such as 3,580 at Rysana Pan in the Makgadikgadi system in August 2000 (Tyler 2001). Kalejta-Summers *et al.* (2001) estimate 7,600 from South African coastal wetlands. Eslewhere on the coast there are often aggregations of >1,000 at Walvis Bay, Namibia, with total counts at times of >3,000 for Namibia (AfWC database), whilst there may only be around 200 along the coast of Mozambique (Parker 1999). There could thus be >10,000 along the coastline, though there is certainly movement between coastal and inland areas. Stroud *et al.* (2004) give a population estimate of 19,300 birds based on 'best-guess' estimates from countries in the region. This estimate was adopted in WPE3 and WPE4. However, the national figures used to generate this figure seem more to reflect the maximum counts for each country, whereas count data reveal highly fluctuating numbers, reflecting the Pied Avocet's regular, and partially nomadic movements within the region. Further, as the size of this population is not as well known as this figure perhaps implies, the earlier estimate of Tree (1997) of 10,000-20,000 would seem more appropriate, with a 1% threshold of 150.

The species has probably increased considerably in Southern Africa during the 20th century following the construction of permanent water bodies such as sewage works and saltpans, which provide drought refuges (Tree 1997). Movements of this population are complex and related to rainfall (Underhill *et al.* 1999); it is a fairly regular non-breeding visitor to the Kafue Flats, Zambia (pers. obs.). 4,036 were recorded in the January 1998 AfWC, including 1,983 in Namibia and 1,971 in South Africa, whilst only 1,538 were in the sub-region in July 1997 (Dodman *et al.* 1999).

UPDATE: Updated to 15,000 – 25,000 in WPE4.
Just under 15,000 were counted from the region in July 2007 (IWC database).

Population *avosetta*, Eastern Africa
This population breeds in Ethiopia, Kenya and Tanzania, being especially numerous on alkaline Rift Valley lakes. High counts include 4,200 at Lake Elmenteita, Kenya in January 1997 (Bennun & Njoroge 1999), 2,002 at Lake Eyasi, 4,000 at Lake Kitangire and 4,940 at Lake Manyara, all in Tanzania in January 1995 (Baker & Baker 2002). One very important site for Black-winged Stilts is the Abijatta-Shalla Lakes National Park, where 12,000-17,000 have been recorded (Ethiopian Wildlife and Natural History Society 2001), though there are most likely birds from both Eastern African and Palearctic populations involved. In south Kenya and north Tanzania, Pied Avocet breeds in small numbers at a number of sites, including lakes Magadi, Manyara, Lygarja, Ndutu and Momela (Britton 1980). Baker (1996) considers there may be up to a few thousand breeding pairs in Tanzania and a non-breeding population of some 12,000-15,000 birds. Hayman *et al.* (1986) mentions '45,000 or more on some Kenyan lakes'. However, the known breeding colonies cannot account for such numbers, so influxes to this region from the Palearctic are surely possible.

Stroud *et al.* (2004) give a population estimate of C (25,000-100,000), which was adopted by WPE3 and WPE4, and a 1% threshold of 1,000 applied. However, as the known breeding population is rather small, it is suggested to use a mid-range figure of 625 as a 1% threshold for this population. Fishpool & Evans (2001) use a 1% threshold of 250 for resident Pied Avocets in Africa under the Africa IBA programme. The trend is not known.

UPDATE: New estimate of 20,000 – 50,000 proposed. Older estimates rely too much on January counts, which include birds from Palearctic. July counts are always very low. Baker (1997) considered there may be a few thousand pairs in Tanzania.

[Population *avosetta*, Western Europe (breeding)
The non-breeding range of this population includes West Africa, where it is most numerous along the western seaboard as far south as Guinea and probably down to Sierra Leone. Pied Avocets are also found in lower numbers at inland Sahelian wetlands from the Inner Niger Delta in Mali to Lake Chad and east of Guinea / Sierra Leone along the coast, but these birds are thought to belong to the Mediterranean and South-east Europe breeding population (see below). Stroud *et al.* (2004) give a population estimate of 73,000 (and a 1% level of 730), based on data from January counts (including 22,500 birds from West Africa), also giving the trend as stable. This includes data from North-west and West Africa as far south as Guinea. The estimate for coastal wetlands of Guinea is 16,000, derived by Altenburg & Van der Kamp (1985) by extrapolating count data based on areas of suitable mudlfats. Over 1,000 have also been recorded at Yawri Bay in Sierra Leone (Van der Winden *et al.* 2007). There were 5,068 in Senegal in January 1998, when there were also 571 in Mauritania, 24 in The Gambia and 567 in Guinea (Dodman *et al.* 1999). The population is thought to be stable.

Population *avosetta*, Mediterranean & South-east Europe (breeding)
The full non-breeding range of this population is not at all clear in Africa, but it is expected to embrace the African Mediterranean coastline and to cover a broad band of the Sahel from Mali to Chad, possibly even further east, and also coastal West Africa east of Guinea / Sierra Leone. There were 119 in Ghana in January 1998, with a further 76 in Mali and 3 in Benin (Dodman *et al.* 1999). Van der Kamp & Diallo (1999) report of small numbers in the central area of the Inner Niger Delta, Mali, with some 50 present in January 1999. An important non-breeding area for Pied Avocet is the Nile Delta and lower Nile, where nearly 22,000 were counted in the northern winter of 1989/1990. This must be a key site for birds of this population, although birds originating from South-west Asia may also utilise the wetlands of this zone. Given uncertainty of the non-breeding distribution, it is probably more appropriate to base the estimate on breeding data. Collation of national breeding totals by Thorup (2003) yields an estimate of about 26,000-42,000 birds. Stroud *et al.* (2004) give an estimate of 47,000 based on January counts in the 1990s and a trend of 'stable (declining)'. This figure includes 22,000 birds from Egyptian wetlands, though some of these birds may originate in South-west Asia.

Population *avosetta*, South-west Asia (breeding)
The non-breeding range of this population includes Eastern Africa, probably as far south as Sudan and northern Kenya. There are marked increases at Lake Turkana and Lake Baringo in northern Kenya between October and May, suggesting the presence of non-breeding migrants (Lewis & Pomeroy 1989). The non-breeding range in Africa probably also includes a good part of Ethiopia, though it is unclear whether the counts of 12,000-17,000 from the Abijatta-Shalla Lakes National Park are part of this population or the Eastern Africa breeding population. Rose & Scott (1997) provide a population estimate of B (10,000-25,000) based on Perennou *et al.* (1994). However, recent estimates of breeding birds in the Caspian drainage, Azerbaijan, Armenia and Russia combined with earlier estimates from Iran but excluding the Central Asian Republics, indicate a minimum population estimate of some 10,900-30,800 birds, and suggest that the estimate of 10,000-25,000 may be too low (Hötker & Dodman in review 2008).

***Burhinus oedicnemus,* Stone-Curlew/Eurasian Thick-Knee**

Population *oedicnemus*, Western Europe (breeding)
Wetlands International (2006) give a population estimate of 110,000-170,000 and a 1% threshold of 1,400 based on breeding data. The breeding population is in a long-term decline in all countries, especially Germany, linked to agricultural intensification and replacement of dry grassland with arable lands (Stroud *et al.* 2004). The non-breeding range includes North Africa and Sahelian West Africa, where it is generally rare.

Population *oedicnemus*, Eastern Europe (breeding)

Wetlands International (2006) give a population estimate of 12,000-36,000 and a 1% threshold of 240 based on breeding data. Breeding is localised and discontinuous, with few countries holding sizeable breeding populations (Stroud *et al.* 2004). The core non-breeding range is the Mediterannean Basin, including North Africa. This race also reaches as far south as northern Uganda (Pomeroy *et al.* 2005) and the Rift Valley of Kenya as far south as the Tanzania border (Urban *et al.* 1986; Lewis & Pomeroy 1989), presumably birds of this population, though birds of the larger Western European breeding population may also be involved.

Population *distinctus*, Western Canary Islands
This population of some 300-400 pairs (equivalent to 900-1,200 birds) on five islands of Western Canary (La Palma, El Hierro, La Gomera, Tenerife and Gran Canaria) is in decline, the main threats being loss and fragmentation of habitat, human disturbance at breeding sites, hunting and road accidents (Barone & Rodriguez 2004).

Population *insularum*, Eastern Canary Islands
Lorenzo *et al.* (2004) estimated there to be between 224 and 1,582 breeding pairs (about 700-4,700 birds) on five islands of Eastern Canary (Fuerteventura, Lanzarote, Lobos, La Graciosa and Alegranza); though it remains fairly common and widespread on the islands, it is probably in decline, with threats including habitat fragmentation, disturbance, nest predation, hunting and road accidents.

Population *saharae*, East Mediterranean, South-west Asia, North Africa to North Mauritania (breeding)
In Africa, this population occurs as a breeding bird across North Africa as far south as North Mauritania in West Africa, where several pairs breed in the dunes within the Parc National du Banc d'Arguin (Isenmann 2006). It is a fairly widespread breeding resident in Egypt (Goodman & Meininger 1989). There are some post-breeding movements south across the Sahara, e.g. some birds from Morocco moving south along the Atlantic coast (Thévenot *et al.* 2003). Although some information is available of breeding totals in Europe, e.g. 1,350-5,580 breeding pairs from Turkey, Greece and Cyprus (Heath *et al.* 2000), there is no clear overview of the overall size or trend of this population. It is most likely to fall within the range B/C (10,000-100,000), and a 1% level of 250 is proposed, expecting the population to be high B or low C.]

***Burhinus senegalensis,* Senegal Thick-Knee**

Population *senegalensis*, West Africa south of Sahara, east to Chad
This is a generally common resident and intra-African migrant occurring from South Mauritania to Chad, being more numerous in the Sahelian zone and absent from some forest blocks. Several hundred are usually recorded from West Africa in the January AfWC, e.g. 634 in January 1998 (Dodman *et al.* 1999), 709 in January 2001 (Dodman & Diagana 2003) and 849 in January 2003 (Diagana & Dodman 2006). Probably the highest count is of 1,071 in 1999 at the Parc National de la Langue de Barbarie at the mouth of the Senegal River in northern Senegal (AfWC database). Fishpool & Evans (2001) give a population estimate of B and a 1% threshold of 150. It is thought that this may be too low, but in the absence of conflicting information, this is adopted here. Wetlands International (2006) gives a 1% threshold of 250. Its trend is unknown, with no causes for conservation concern.

[update text]

Population *inornatus*, Nile Valley, Egypt, to Northern Uganda, Ethiopia, Kenya
This population is reasonably common along the Nile River and on the shores of Lake Turkana (Britton 1980), where it as the south-east limit of its northern tropics breeding range (Lewis & Pomeroy 1989). 144 were recorded in Ethiopia in the January 1998 AfWC (Dodman *et al.* 1999). Fishpool & Evans (2001) give a population estimate of B and a 1% threshold of 150, which may be too low, but in the absence of conflicting information, this is adopted here. Wetlands International (2006) gives a 1% threshold of 250. Wetlands International (2006) gives a 1% threshold of 250. Its trend is unknown, with no particular cause for conservation concern. However, Pomeroy et al. (2005) suggest it has declined in Uganda, where it was once farily common in the drier northern part of the country.

[update text]

***[Burhinus vermiculatus,* Water Dikkop / Water Thick-Knee**

Population *vermiculatus*, Congo to Somalia, south to South Africa
This population is widespread from western Congo across Central Africa to Eastern Africa, where it is locally common to Somalia. Its range continues southwards to South Africa as far as the Cape, also occurring across Zambia and Zimbabwe to northern Namibia and Angola. Fishpool & Evans (2001) give an estimate of C

(10,000-25,000) for combined populations of *vermiculatus* and *buettikoferi*. The nominate race surely accounts for the bulk of this population, so a provisional estimate of C is made, and a slightly low mid-point 1% level of 500 proposed, in accordance with Fishpool & Evans (2001). This is a sedentary population.

Population *büttikoferi / buettikoferi*, West Africa from Liberia to Gabon
This population has a scattered distribution in West Africa always associated with water, though it is only really common along the coastal zone of Liberia and along the coast and major rivers of Côte d'Ivoire. Gatter (1997) estimated 500 pairs from along the Liberian coastline. Elsewhere, it is either vagrant, rare or uncommon in suitable habitat, occurring through Ghana to Nigeria, Cameroon and Gabon, with records also from Burkina Faso and south-east Niger (Borrow & Demey 2001). Hayman *et al.* (1986) ascribe birds of northern Uganda to this population, but this is not widely adopted. Fishpool & Evans (2001) give an estimate of C for combined populations of *vermiculatus* and *buttikoferi*. A provisional population estimate of A/B and a 1% level of 100 is proposed for this rather patchily distributed and generally uncommon population. It would appear to be largely sedentary, though some local movements are reported.

***Burhinus capensis,* Spotted Dikkop / Cape Dikkop / Spotted Thick-Knee**

Population *capensis*, Kenya - Southern Africa
This is a common resident in suitable habitat throughout much of Southern Africa and in interior East Africa as far north as mid-Kenya. It is less common in southeast and Northwest Tanzania (Britton 1980). Fishpool & Evans (2001) give an estimate of C and a 1% threshold of 500 for all four populations combined. This is thought too low, but provides a useful guideline upon which to base population estimates for separate populations, assuming that the top end of C is an acceptable estimate for the species. Dodman (2002) considered that this population surely accounts for the bulk of *B. capensis*, and proposed a provisional estimate of 'upper C' (50,000-100,000) and a 1% level of 750. Wetlands International (2006) adopted an estimate of C (25,000-100,000) and a provisional 1% level of 1,000. Tree (*in litt.* 2008) considered this threshold to be too high, and proposed a new 1% level of 600. This would equate to a population estimate of about 40,000-80,000, which is proposed here. This population is thought to be increasing in Southern Africa, as bush clearance has helped it to extend its range and it adapts well to habitat modification, whilst it is no longer considered as a gamebird (Maclean 1997).

Population *maculosus,* Sahel belt of Africa from Senegal to Somalia
This is a generally uncommon resident in West Africa, from Southern Mauritania and Senegal east to Chad and Northeast Central African Republic, continuing across to Kenya and Somalia. It appears to be more numerous further east in its range, and is fairly common south of the Sahara in Sudan (Nikolaus 1987), and a common and widespread breeding resident in Somalia (Ash & Miskell 1998), though it is rather uncommon in Kenya (Lewis & Pomeroy 1989). Dodman (2002) gave a population estimate of B, based on the estimate for *capensis*, but this is thought now to be too low, and a wider range of B/C is proposed, based in particular on the extensive habitat available in Sudan and its status as common here and in Somalia. This results in a provisional 1% threshold of 1,000, whilst the trend is unknown, though there is no reason to suspect it to be in decline.

Population *damarensis*, Namibia, West Botswana, North-west Cape of South Africa
This population is centred on the arid lands of Namibia, occurring from the Kalahari in Botswana west, and reaching the North-west Cape Province of South Africa. Its range covers some very arid areas, where it is likely to have a low population density. It is largely absent from the drier parts of the Nambi Desert (Hockey *et al.* 2005). Dodman (2002) gave a provisional population estimate of A and proposed and a mid-point 1% threshold of 50, whilst Tree (*in litt*. 2008) refined this estimate to 5,000-10,000, with a resulting mid-point threshold of 75.

Population *dodsoni*, Red Sea coast of Africa from Eritrea to Somalia, and in Southern Arabia
This population occurs along the northern Somali coast through Djibouti to the Eritrea coast and in Eritrea's Dahlak Archipelago, where it is frequent (Urban & Brown 1971). It is also found in Southwest Arabia, with apparently isolated populations in southern Yemen and Oman. A provisional population estimate is proposed of B, expected to be towards the top end of this range, resulting in a provisional 1% threshold of 250.]

***Pluvianus aegyptius,* Egyptian Plover / Crocodile Bird / (Egyptian Courser)**

Population *aegyptius*, Western Africa
It is recommended here to split *aegyptius* into two discrete populations, one with a core distribution from eastern Senegal to Lake Chad (this population) and another with a core distribution along the Omo and Nile rivers in East Africa (see below). In Western Africa, this is a fairly regular and common bird along sandy banks

and on sandbars of the wider rivers. It occurs on the Senegal River (but not usually in wetlands of the Senegal Delta) and on the upper Gambia River, along the Niger River and eastwards to Niger and Chad. It is a ubiquitous and often confiding bird on the Niger River, apparently breeding on islands in the Inner Niger Delta in April 2002 (pers. obs.). 246 were recorded in the delta's Lac Débo and Lac Walado Débo in August 1998, decreasing to <10 in this area by November 1998, then increasing gradually to around 100 by June 1999 (van der Kamp & Diallo 1999). There are thus regular movements away from such areas according to the annual flood cycle and resulting water levels. This population may certainly be considered as a (partial) intra-African migrant. Brouwer & Mullié (2001) provide an average population estimate in Niger of 1,161, based on data from 1994-1997, suggesting that there may be around 1 pair per km of (Niger) river.

Fishpool & Evans provide a population estimate of B for *aegyptius* (both populations described here), which seems too low, given the rather common and widespread nature of this species in suitable habitat in West Africa. A slightly higher population estimate is proposed of 20,000-50,000 for this population, with a mid-point 1% level of 350. There do not appear to be any major threats to this population, which seems to be stable, occupying most suitable stretches of river. Its tolerance to man is also important in enabling it to live in quite heavily utilised stretches of river.

Population *aegyptius*, East Africa
This population would appear to be less numerous than the West Africa population, although parts of its range are not well known or monitored, such as the River Nile in Sudan. It has a rather scattered distribution along the Nile and Omo rivers and at a few other suitable rivers and lakes in Ethiopia, into northern Uganda (where very rare) and north of the Congo River in the Democratic Republic of Congo. This population used to extend to Egypt, where it bred on the Nile, though it no longer occurs here. Occasional observations in northern parts of the Nile River in Sudan lend hope that it may return to Egypt, at least as a visitor.

A preliminary population estimate of A/B (<25,000) is proposed, perhaps somewhere around the 10,000 mark. This is based on the rather limited range and lower availability of suitable habitat compared to West Africa. This population has disappeared from parts of its former range, especially in the north, presumably due to development and canalisation of the Nile River. As there would still appear to various proposals for further development of the Nile, the population may well be in decline.

Population *angolae*, Lower Congo Basin; Democratic Republic of Congo & northern Angola
This population occurs in the lower Congo Basin, along the Congo River and on tributaries and other suitable wetlands in northern Angola It is an uncommon resident on sandbanks and open riverbanks of the Cuanza and Cuango rivers in Angola (Dean 2000). It is not known from the heavily forested section of the Congo River, and it is not common along the middle Congo River (Chapin 1939). Fishpool & Evans (2001) provide a population estimate of A and a 1% level of 50, which are both adopted here. Its trend is not known.

***[Rhinoptilus africanus,* Double-banded Courser / Two-banded Courser**

This courser occurs in a variety of open usually dry habitats in Eastern and Southern Africa. There are three main centres of occurrence:

- Southwest Africa, with 4-5 populations (*africanus, traylori, bisignatus, sharpei, granti*)
- East Africa, with 1-2 populations
- Horn of Africa, with 2 populations.

Fishpool & Evans (2001) give an estimate of D for all populations combined.

This is not a wetland–dependent species nor congregatory, so there is not a great value in determining 1% thresholds, especially as the divisions between and status of the different populations are not well known. It is expected that there is a population of 'C' (25,000-100,000) in each of Southern Africa and the Horn of Africa, but there is not enough data at present to refine further these two approximate multi-population estimates. A population of B (10,000-25,000) is proposed in East Africa (*gracilis*) based on the limited range in south-west Kenya and northern Tanzania and its expected rather low density. This population is rather uncommon and local on open or sparsely bushed plains up to 1,800m in Kenya (Lewis & Pomeroy 1989), usually occurring in pairs or small groups. Maclean (1997) considers this species to be fairly common in Southern Africa, where it has adapted well to stock-farming practices and locally to crop-farming. Most populations are largely sedentary, but there are at least seasonal migrations (Hayman *et al.* 1986), presumably in response to rain. However, in some areas, notably much of Southern Africa, it is highly nomadic. The populations following

Urban *et al.* (1986) are listed below, although some of these are not adopted by several authors, whilst there are also differences in the ranges ascribed to different populations:

Population *africanus*, SW & C Kalahari, S Namibia, N & W Cape Province
Population *raffertyi*, C & E Ethiopia, Eritrea, Djibouti
Population *hartingi*, SE Ethiopia & Somalia
Population *gracilis*, C Kenya & N Tanzania
Population *illustris*, C Tanzania
Population *traylori*, Etosha (Namibia) - Makgadikgadi (Botswana)
Population *bisignatus*, SW Angola
Population *sharpei*, Central Namibia, including the proposed form *erlangeri*
Population *granti*, C Cape Province & Karoo, South Africa

Across most of its range the status of the Double-banded Courser is probably stable, though increased cultivation of grasslands in Somalia may pose a threat (Ash & Miskell 1989).

***Rhinoptilus cinctus,* Three-banded Courser / Heuglin's Courser**

Fishpool & Evans (2001) give a population estimate of D for all populations combined.

Population *cinctus*, Eastern Africa: Eritrea & Ethiopia south to northern and eastern Kenya
This population is widespread and sometimes common in bushland and bushed grassland in low rainfall areas of Kenya, a common breeding resident in Somalia in Acacia bushlands and frequent in grasslands in Ethiopia (Britton 1980, Ash & Miskell 1998, Urban & Brown 1971). It is largely resident / sedentary, but partially migratory in some areas, probably with local movements. It marginally occurs in south-east Sudan and north-east Uganda. As this is the largest population of the three described, a population estimate of C/D is proposed, in line with the estimate of D for the species provided by Fishpool & Evans (2001).

Population *emini*, South-west Kenya to North & Central Tanzania
Some authors subsume emini in the nominate race, but it is not recognised by following Britton (1980). Its range is from the eastern shore of Lake Victoria in south-west Kenya into Tanzania as far south (and east) as Ruaha National Park. It is fairly widespread but generally uncommon across most of its range occurring mostly in bushlands and woodlands, including miombo. There were 'large numbers' in the Tsavo region of Southeast Kenya in March-April 1978, so substantial movements may occur (Britton 1980), perhaps on an irregular basis. A provisional population estimate of B is proposed.

Population *seebohmi*, Zambia and Zimbabwe into northern Botswana, northern Namibia and south Angola
This population is largely resident in northern Namibia and south Angola more-or-less along the Cunene River to the Caprivi Strip, into north-east Botswana and throughout much of Zimbabwe, thence into southern Zambia and northeast along the Luangwa Valley. In Angola it occurs in dry mopane and miombo woodlands (Dean 2000). Highveld birds in Zimbabwe may have some local movements, but it is essentially a resident bird of this country, most common in low-lying areas (Irwin 1980). Dodman (2002) proposed a provisional population estimate of A/B, which was refined to 5,000-10,000 by Tree *in litt.* (2008), who considers it to be very localised and generally uncommon.

***Rhinoptilus chalcopterus,* Bronze-winged Courser / Violet-tipped Courser**

Two races have been described, but Hayman *et al.* (1986) suggest that this species should probably best be regarded as monotypic, and other authors also follow this treatment (e.g. Urban *et al.* 1986, Hockey *et al.* 2005). Here, two populations are recognised, but one race. Fishpool & Evans (2001) give a combined population estimate of D for both populations. This species is an intra-African migrant (both populations).

Population *chalcopterus*, Sahelian Africa: Senegal - Sudan & west Ethiopia
This species is rather uncommon in West Africa, occurring mainly in the Sahel zone from Mauritania and Senegal in the west to Chad in the east, its distribution continuing across the Sahel zone to Ethiopia. It is uncommon in Sudan, where it is often found in small parties in dry woodland and bushland (Nikolaus 1987). A population estimate of C is proposed.

Population *albofasciatus*, Angola to southern Sudan, south to South Africa
This population is considered as occurring from Angola through Zambia to Tanzania and southern Kenya, and south to South Africa. It is most numerous in Zambia in the dry season between May and November, breeding in miombo and mopane woodland late in the dry season; also breeding in southern Tanzania in the late dry

season (Britton 1980). Essentially, this appears to be a breeding bird from Angola through Zambia to Tanzania and north to Uganda, dispersing south as far as South Africa and north through east Tanzania to south-east Kenya after breeding. Dodman (2002) proposed a population estimate of C, which Tree (*in litt.* 2008) considered too high, proposing instead 10,000-30,000 on account of its sparse distribution throughout its breeding range. This is adopted here, and a 1% threshold of 200.

***Cursorius cursor,* Cream-coloured Courser / Desert Courser**

Population *cursor*, North Africa, Arabian Peninsula, Socotra (breeding)
In North Africa, this population occurs from Morocco to Egypt as a resident breeding bird and partial migrant, whilst it also breeds in Arabia and Socotra. In Tunisia, some birds move north after breeding (Isenmann *et al.* 2005), whilst in Algeria it shows a reverse migration system, with spring migration towards the south and autumn migration towards the north in search of less arid areas (Isenmann & Moali 2000). Birds in eastern Morocco are also migratory and most likely spend the northern winter further south in the Sahel (Thévenot *et al.* 2003). The non-breeding range includes Sahelian Africa (south of the Sahara), from Mauritania and Senegambia across to Sudan and as far as north-west Somalia (Somaliland), where it is a rare Palearctic migrant (Ash & Miskell 1998). In parts of its Sahelian range, it also occurs as a breeding resident, with breeding confirmed in Mauritania (Isenmann 2006). No population estimate is made.

Population *exsul*, Cape Verde Islands
This population is restricted to arid and semi-arid areas of Cape Verde, especially on Boavista, Sal, Maio and Santiago (Hazevoet 1995). There are reasonable numbers on Boavista and Maio, and both islands may have between 50 and 100 birds each, whilst smaller numbers occur on Santiago, Sal, São Nicolau and São Vicente, and the total for these islands may be some 100 birds (C. Hazevoet *in litt.*). These figures suggest a population of 200-300 individuals, which is broadened here to 150-350 given the uncertainty. The population appears to be in decline, and is prone to various development threats, especially on Boavista, which is raidly being developed as a tourism destination.

Population *bannermanni*, Canary Islands
BirdLife International/European Bird Census Council (2000) indicated a breeding population of 200-250 pairs (i.e. 600-750 individuals) in the Canary Islands, which was later revised to 99-594 pairs (BirdLife International 2004), which equates to about 300-1,800 individuals. Although it has recently bred on Tenerife (a range extension), overall the population is in decline, with a decrease of some 60-70% on Lanzarote between 1982 and 1993/95, and declines also noted on Fuerteventura, where it has disappeared from some areas due to transformation of the habitat (Emmerson & Lorenzo 2004).

***Cursorius somaliensis,* Somali Courser**

The Eastern Africa sub-Saharan breeding populations of Cream-coloured Courser were treated as a separate species, Somali Courser, by Pearson & Ash (1996). Fishpool & Evans (2001) give a population estimate of D for all populations of *cursor and somalensis*. Hayman *et al.* (1986) place these two populations with *C. rufus*.

Population *somalensis*, Eritrea, eastern Ethiopia, northern Somalia
This population occurs east of the Ethiopian highlands and into northern Somalia, where it is common and widespread in the north, becoming less common west of the River Shebelle south of 5°N (Ash & Miskell 1998). Using the Fishpool & Evans (2001) estimate as a guide, a provisional population estimate is proposed of C (25,000-100,000). Its status is unknown, but it is not thought to be prone to any particular threat.

Population *littoralis*, Extreme south-east Sudan, northern Kenya, southern Somalia
This population has a wide distribution across much of northern Kenya and southern Somalia, especially in the coastal zone to about 3°N, where it appears to be common (Ash & Miskell 1998). It is locally distributed in desert, semi-desert and grassland in northern Kenya, west to Turkana (Britton 1980). Using the Fishpool & Evans (2001) estimate as a guide, a provisional population estimate is proposed of C (25,000-100,000), with trend unknown.

***Cursorius rufus,* Burchell's Courser / Rufous Courser**

Population *rufus*, inland plateau of South Africa, westwards to 21°E
Some authorities only recognise the nominate race. Others include *C. cursor somaliensis* and *C.c. littoralis*. Fishpool & Evans (2001) give a population estimate of D for *C. rufus*. However, this is a generally uncommon species endemic to Southern Africa, and D seems to be far too high. This population has declined significantly in both range and number, and no longer breeds in areas of former range, such as KwaZulu-Natal; perhaps

due to agricultural instensification and the use of pesticides (Hockey *et al.* 2005). Given its uncommon status and declines across its relatively small and shrinking range, a population estimate of A is proposed (<10,000), with a provisional 1% level of 100.

Population *rufus (theresae)*, South-west Angola, South Africa west of 21°E & Namibia
This race is not widely recognised, but Dodman & Delany (in review 2008) treat it as a separate population. It occupies a more arid zone than *rufus* in South Africa, and does not seem to be in decline. There is no evidence for seasonal fluctuations in Namibia (Maclean & Herremans 1997). A provisional population estimate of B is proposed, and a 1% level of 250. Tree (*in litt*. 2008) gives an estimate of 10,000-30,000 for all birds in Southern Africa, which is in close agreement with the two population estimates provided here.

***Cursorius temminckii,* Temminck's Courser**

It is proposed to split race *temminckii* into two populations, one in West Africa and another from Central Africa to East Africa, with birds in Central and Central-Southern Africa now treated as the form *ruvaniensis*; these ere formerly included in *temminckii* (e.g. Wetlands International 2002). Fishpool & Evans (2001) give a population estimate of D (100,000-1,000,000) for *C. temminckii*.

Population *temminckii*, South Mauritania & Senegal to Chad & Central African Republic
This population occurs across the West African Sahel zone from Mauritania to Chad, reaching coastal zones between Ghana and Cameroon. It is generally uncommon in West Africa, much less numerous than *temminckii* in East Africa. A provisional population estimate of B/C is proposed.

Population *temminckii*, Ethiopia south through Eastern Africa to Tanzania, possibly further south
This is the commonest and most widespread courser in East Africa, and is regular as a migrant or wanderer up to 3,000m (Britton 1980). Using the Fishpool & Evans (2001) estimate of D for this species, a provisional population estimate is proposed of C/D.

Population *ruvaniensis*, Central Africa, central and eastern Southern Africa
In some parts of its range this is perhaps the most common courser, but in other areas it is rather thinly distributed. It occurs almost throughout Zambia, where it is mainly a dry season breeding visitor, though birds do not enter from the north (Tree 1969, Dowsett *et al.* 2008). Dodman (2006) proposed a provisional population estimate of C (25,000-100,000) though Wetlands International (2006) retained the larger estimate of C/D (25,000-1,000,000) formerly used for this population and the Eastern African population of *temminckii* combined (Wetlands International 2002). Tree (*in litt*. 2008) considered this to be far too high, and proposd a range of 25,000-80,000, which is adopted here, with a mid-point 1% threshold of 525.

Population *aridus* (formerly *damarensis)*, Namibia, western Botswana
This population is paler than *temminckii*, but is not considered by all authors to be a well-defined race (Hayman *et al.* 1986). It occurs in northern Namibia east to Botswana and the Kalahari, and marginally to arid areas of western Zimbabwe (Hockey *et al.* 2005). It particularly favours saline pans. Given its rather limited distribution and its degree of habitat specialisation, a provisional population estimate of A/B is proposed.]

***[Glareola pratincola,* Collared Pratincole / Common Pratincole / Red-winged Pratincole**

At least six races of *G. pratincola* have been described, with many authors not recognising one or more of them. Rose & Scott (1997) recognised five races with a total of seven populations, and this treatment was carried through *WPE3* and *WPE4*, though the validitiy of two to three of these forms was questioned. Stroud *et al.* (2004) consider only the three populations of *pratincola* to be migratory, but at least two of the four Africa populations have regular movements, and are either partial or full intra-African migrants or nomadic. Fishpool & Evans (2001) give a combined estimate of D for all Africa populations, indicating that this should be taken as 'low D', hence a 1% threshold of 1,000 is used in the IBA Africa Programme.

Population *pratincola*, Western Mediterranean (breeding)
Stroud *et al.* (2004) give a population estimate of 18,000-19,500, based on breeding data, which includes <500 pairs in Tunisia, 200-300 pairs in Algeria and 200-300 pairs in Morocco. This population is a non-breeding visitor to West Africa, where resident birds also occur.

Population *pratincola*, Black Sea, East Mediterranean (breeding)
Stroud *et al.* (2004) give a population estimate of 16,000-31,000, based on breeding data, which includes data from Egypt. The non-breeding range of this population includes areas of the African Sahel, though the usual limits of this range are not clear.

Population *pratincola*, South-west Asia (breeding)
Stroud *et al.* (2004) offer a tentative estimate of B/C for this poorly known population. It is a non-breeding visitor to North-east Africa; flocks totalling 30,000 were seen moving north in south-east Sudan in April 1985 (Scott 1999).

Population *pratincola (limbata),* Red Sea from Sudan to Somaliland, southern Arabia, Sudan & Ethiopia
This population of Sudan, Ethiopia and the Red Sea region is not sedentary, and in some areas is only recorded as a non-breeding visitor. It also crosses the Red Sea into the Arabian Peninsula. It breeds in Sudan, with records from the Nile south of Khartoum (Nikolaus 1987). However, Collared Pratincoles in western Somaliland are passage visitors, recorded in August and September, and may either belong to this population or to the South-west Asia breeding population. Using the Fishpool & Evans (2001) estimate of 'low D' for all Africa populations, a provisional estimate of B/C is proposed.

Population *fuelleborni (erlangeri)*, Coastal south Somalia & Kenya
This population occurs along a coastal band from Southern Somalia to Kenya, where it occurs at times alongside *G. ocularis*, a non-breeding visitor to the African continent from Madagascar. In Kenya, it is most recently recorded in the the Tana and Sabaki estuaries (Lewis & Pomeroy 1989). There are floodplains between the Juba and Shebelle rivers in Somalia, where this population is presumably resident. Birds in this population tend to start breeding in June, whilst birds further west tend to breed earlier (Ash & Miskell 1998, Urban *et al.* 1986). The population appears to be rather small, and a provisional population estimate of A/B is proposed.

Population *fuelleborni*, Central, East & Southern Africa (to east South Africa)
This population occurs fairly widely in Central Africa from The Congo and through much of the Democratic Republic of Congo. It is feasible that birds breeding in West Africa may come to Central Africa as a non-breeding visitors, as some authors consider the range of West African birds (treated by some as *boweni*) to reach Gabon. However, there does appear to be a gap in distribution between Sahelian West Africa and Central Africa, with apparently few records from the forest zone of southern Cameroon to Central African Republic, south to The Congo.

Essentially though, this is a population of East Africa (Uganda, Kenya, Tanzania) down through Zambia, Malawi and Mozambique to Southern Africa, where it is a visitor during the austral summer as far south as KwaZulu-Natal on the east coast of South Africa. It is widespread and locally common in wetland and littoral habitats up to 1,800m in East Africa, with breeding records from below 1,500m, mainly in low rainfall areas, including Kabalega Falls and Ruwenzori National Parks and Lakes Turkana, Magadi, Manyara and Rukwa (Britton 1980). In Tanzania, over 2,000 have been recorded at Tarangire National Park and 1,500 at each of Lake Kitangire and the Usangu Flats in 1995 (Baker & Baker 2002). In Zambia, it breeds on the Kafue Flats, where 17,070 were recorded in July 2000, also breeding in Liuwa Plain and the Barotse Floodplain in Western Province and at the Bangwuelu Swamps, with >1,000 recorded at each site (Leonard 2005). At times there are large concentrations in Botswana, where it has a breeding stronghold in northern wetlands; about 10,000 were recorded (mostly breeding) at Lake Ngami in November 1989, following July flooding (Tyler 2001, Hockey *et al.* 2005). However, concentrations of birds at all times are very variable, largely dependent on climatic conditions. There are pre-breeding and post-breeding flocks numbered in the hundreds in Malawi (Dowsett-Lemaire & Dowsett 2006). Parker (1999 & 2005) estimates over 5,000 to occur in southern Mozambique and about 20,000 in central Mozambique. Numbers in South Africa are significantly lower, with probably less than 100 pairs (Barnes 2000).

Overall, the population is likely to fall within the D range, but surely 'low D', with perhaps 50,000-100,000 in Southern Africa (including Zambia, Mozambique and Malawi), thus a provisional population estimate is proposed of 100,000-300,000. A mid-point 1% level of 2,000 is proposed.

Population *fuelleborni (boweni)*, West Africa (Senegal to Lake Chad)
Some authors ascribe West African breeding birds to *boweni*, but most subsume them into *fuelleborni*. Here, the range of birds breeding in West Africa is presumed to be from the Senegal and Gambia Rivers across the Sahelian zone (north of the West Africa forest block) to Ghana and western Nigeria, where it reaches the coast, and across to the Lake Chad Basin. This population also occurs along coastal Sierra Leone and Liberia, and there are other scattered records from outside this approximate range. Brouwer & Mullié (2001) give an average population estimate for Niger of 698 birds, based on AfWC data from 1994-1997. 4,817 Collared Pratincoles were counted in a core area of Mali's Inner Niger Delta in March 1999 (van der Kamp *et al.* 2001). A total of 5,519 were recorded from West Africa during the January 1998 AfWC, including 2,289 in The Gambia, whilst 300 were in Ghana in July 1997 (Dodman *et al.*, 1999). However, large flocks in The

Gambia between late November and March are likely to be of Palearctic origin, whilst there is also a record of a rainy season flock of 300 in mid-July, made up largely of immatures (Barlow *et al.* 1997), presumably the African race.

Given the paucity of records of large flocks outside the northern winter, when *pratincola* are present in the sub-region, the population appears to be fairly small, and a provisional population estimate of B is proposed. This population is an intra-African migrant, moving according to rains and water levels of the large rivers.

***Glareola nordmanni,* Black-winged Pratincole**

There is one population, *nordmanni*, which breeds in Western and Central Asia and southeast Europe. It is strongly migratory, with apparently the whole population crossing Arabia and the Mediterranean to spend the non-breeding season in Africa. It is expected that most birds pass through North-east Africa, (with certainly some along the Nile), as quite large flocks have been recorded from areas west of Lake Victoria. Birds may then follow the western Rift, perhaps west and east of Lake Tanganyika to western Zambia, from where there are historical reports of huge flocks, into eastern Namibia, Botswana and northern areas of South Africa. There is a record of 120 from Serengeti National Park and of 150+ from the Usangu Flats in southwest Tanzania (Baker & Baker 2002). At Liuwa Plain National Park in Western Zambia, this species is an abundant passage migrant, which has been recorded recently in tens of thousands with some regularity, with an estimate from 1977 of 'hundreds of thousands of birds' (Leonard 2001).

In Botswana, there are counts of 2,000 (January 1991) and 5,200 (January 1993) at Rysana Pan in the Makgadikgadi system (Tyler 2001), whilst Penry & Tarboton (1990) report of many thousands at Lake Ngami in 1989. This bird is nomadic within Botswana, favouring damp ground or newly flooded grassland and ploughed areas (Tyler 2001). It would appear to be less numerous in South Africa, although Du Plessis (1995) reports of a single congregation of 250,000-800,000 birds in Orange Free State in December 1991. Widespread chemical control of locusts, a major food item for *G. pratincola*, is thought to have contributed to declines (Du Plessis 1995). Non-breeding flocks could easily be missed in south-east Angola and eastern Namibia.

On return to breeding areas, they are presumed to overfly the equatorial forests of Democratic Republic of Congo at a great height, although birds have been noted in ones and twos dropping into forest clearings in the eastern part of the country to rest (Bannerman 1953). April flocks of hundreds are probably annual in western Uganda, with records of up to 500 from Kabalega Falls and Ruwenzori National Parks in April (Britton 1980). A flock of over 5,000 birds resting with Collared Pratincoles on the Bara River in south-east Sudan in December and January (Ash (1977) in Nikolaus (1987)) may indicate that not all birds reach Southern Africa, or they may at times use staging sites on their northwards migration.

This species also occurs in West Africa, from where it is reported less frequently. Nevertheless, there are enough records to confirm this sub-region as being a second non-breeding zone for *G. nordmanni*. In West Africa, it is rare to locally uncommon from September to April at major lakes and rivers in the Sahel zone, recorded from Mauritania across to Chad (Borrow & Demey 2001). These birds could potentially represent a dwindling 'sub-population' of breeding birds from South-east Europe.

Stroud *et al.* (2004) base their estimate of 29,000-45,000 on breeding data. Whilst there are some well-documented declines in breeding numbers in Europe, this estimate does not match well with reasonable evidence of a sizeable non-breeding population in Southern Africa. It may be that some important breeding areas in Western and Central Asia are being missed, which may not be surprising given the size and remoteness of some areas of the breeding range in Russia and Kazakhstan. Dodman (2002) considered this estimate too low, and suggested a population estimate of C/D is preferred, which reflected better the rather unknown size of this population, with conflicting data from breeding and non-breeding areas. Recent surveys indicate that the breeding population in Kazakhstan may be higher than previsouly thought, with Kamp *et al.* (2006) finding 1,500 breeding pairs in 1% of the known breeding range, noting that there was no indication that habitat availability or density differend in other parts of its distribution in this country. BirdLife International (2008) give an estimate of 100,000-499,999, which is adopted here, rounding the upper limit to 500,000, with a 1% level of 3,000.]

***Glareola ocularis,* Madagascar Pratincole**

There is one population, *ocularis*, which is a breeding bird of Madagascar. It is migratory, visiting mainly areas of the Eastern Africa coast from Somalia to Mozambique during the non-breeding season, with occasional records of flocks from inland sites, e.g. up to 1,000 at Lake Victoria (Urban *et al.* 1986). In Somalia, it occurs

on the Shebelle River south of Mogadishu (Ash & Miskell 1998, pers. obs.), and there are records of flocks of 3,000 from Southern Somalia from 1979 and 1981 (del Hoyo *et al.* 1986). In Kenya, a key site for this species is the Sabaki River mouth, where there have been records of regularly up to 2,500 (Bennun & Njoroge 1999), with a maximum of 9,000-10,000 in 1978 (Lewis & Pomeroy 1989). This bird tends to visit Africa between April and September, so there are limited records in the AfWC, which sees greatest coverage in January. In Tanzania, 2,000 were recorded at the Dar es Salaam coast in 1982 (Baker & Baker 2001). However, this species tends not to remain in coastal areas of Tanzania, where it only occurs on passage (N. Baker, *in litt.*). It has also been recorded on passage in Comoros, with all records from Mayotte in October (Louette 2004), indicating movements back to Madagascar for breeding via this island group.

In Madagascar, this species breeds mostly in the east on rocks in rivers and on coasts, but it has also been found breeding in the west (F. Hawkins, *in litt.*). There are large non-breeding congregations at two sites in west Madagascar, the Tsiribihina River and the Mangoky Delta, with 250 recorded from each site, whilst a flock of 121 (post-breeding) has been seen in the east at the North Pangalanes wetlands (ZICOMA 1999). F. Hawkins (*in litt.*) suggests that the population might be in the region of 2,000-10,000, but indicates the need for data from Eastern Africa.

Scott (1999) considers this species to have an unfavourable conservation status, mainly due to widespread degradation and loss of wetland habitats in Madagascar, also suggesting a population of <50,000. Fishpool & Evans (2001) give a population estimate of A (<10,000) and use a 1% threshold of 50 for the IBA-Africa Programme.

Whilst data from Madagascar suggest a population of <10,000, records from Eastern African may refine this further: there are perhaps non-breeding totals of some 2,500-5,000 in Somalia and 2,500-5,000 in Kenya, whilst there are likely to be <5,000 in Tanzania and probably northern Mozambique. However, birds from the latter two countries are essentially on passage and cannot be added to the totals for Kenya and Somalia. A new population estimate is thus proposed of 5,000-10,000, with a 1% level of 75. Given the presence of higher numbers in the 1970s and probably the 1980s, this species appears to have suffered major declines in the last 20 years, and may still be in decline, and it is appropriate to consider this species to be of conservation concern.

[UPDATE: >3,000 counted in the Tana River Delta in September 2010 (O. Hamerlynck in litt. 2010).]

***Glareola nuchalis,* Rock / White-collared Pratincole**

Population *nuchalis*, Gabon to Ethiopia, south to the Zambezi River
This is a wide-ranging population from Cameroon and Gabon in the west, through Central Africa to Sudan and Ethiopia south as far east as western Kenya and south-eastern Tanzania to east-central Angola, extreme north-eastern Botswana, Zimbabwe and western Mozambique. In Southern Africa, it rarely occurs south of the Zambezi River. It is locally abundant along suitable rivers, with breeding groups of up to 100 pairs in some areas (Urban *et al.* 1986). The Zimbabwe population has been estimated at 1,600-1,800 birds prior to breeding (Harrison *et al.* 1997).

Scott (1999) reports that it is plentiful only between July and early January in Zambia, with a peak in September when water levels become low, and that migrants from the Caprivi Strip have been observed in eastern Democratic Republic of Congo between January and July. This species was observed on rivers in eastern Democratic Republic of Congo in September 1988 (pers. obs.). It is thus at least a partial migrant, probably moving according to changing river levels.

The breeding population in Zimbabwe is apparently decreasing because of silting on the south-eastern lowveld rivers and dam-building on the Zambezi River (Tree 1997). Fishpool & Evans (2001) give a population estimate of B. However, this is thought too low, given the wide range and apparently common status of this species along a number of rivers. The Congo Basin potentially harbours fairly sizeable numbers, especially along its upper reaches and other areas where rocks are regularly exposed. A higher population estimate is thus proposed of C, and a 'mid-range' 1% level of 500.

Population *liberiae*, West Africa: Guinea to West Cameroon
This population is restricted to West Africa, where its western limit is generally regarded as being in Sierra Leone and Southeast Guinea, although three were seen on the Rio Corubal in Guinea-Bissau in March 2002 in very suitable habitat (pers. obs.). It extends through the West Africa forest block and the savannah zone to West Cameroon, extending further north along the Niger River. Intermediates between *liberiae* and *nuchalis* occur in West Cameroon (Urban *et al.* 1986). The population is at least partially migratory, presumably moving

according to fluctuating river levels. It is a regular migrant in Nigeria, occurring on the Niger River only between mid-March and September (Scott 2002).

Fishpool & Evans (2001) give an estimate of B and a 1% level of 150 for this population, which is supported here. There is no information available on trends, though a constant threat is the loss of habitat due to creation of dams.

[UPDATE. ADD INFO FROM GATTER ETC. 100,000-300,000.]

***Glareola cinerea,* Grey Pratincole**

Population *cinerea*, West & Central Africa from Benin & Niger to north-west Angola
This population occurs in the forest and savannah biomes from Benin around the coast to The Congo and north-west Angola, and in the Sahel from Niger to Lake Chad and into Central African Republic and the Democratic Republic of Congo. It is locally common, though is not recorded at all from many areas within this range, depending largely on the availability of broad rivers. It is rarely recorded in AfWC counts in West Africa, though coverage is limited over much of its range. However, 318 were recorded on the Sanaga River in Cameroon in January 1998 (Dodman *et al.* 1999), with 807 on the same river in January-March 2007 (Van der Waarde 2007).

Cinerea is an intra-African migrant, moving in response to changes in water levels, rather like Egyptian Plover, though in some areas it is probably fairly resident. Its occurrence in coastal areas is thought to be during the non-breeding season. Records of breeding in Equateur province, Democratic Republic of Congo in February-March and July suggest there are two breeding periods here (Demey *et al.* 2000).

Fishpool & Evans (2001) use a combined estimate for both populations of B and a 1% threshold of 200 for the IBA Africa Programme. Certainly, this population is significantly larger than *colorata*, which is restricted to the upper Niger River. A population estimate is thus proposed of B, and a 1% threshold of 150.

[UPDATE TEXT.]

[Population *colorata*, Upper Niger River, Mali
This population, which is not clearly defined, occurs along the upper Niger River in Mali and into north-east Guinea. It is migratory, moving along the river as floods recede and as water levels rise, and may reach other areas further afield. A provisional population estimate of A and 1% level of 50 is proposed, as it may well number <5,000.]

***[Pluvialis apricaria,* Eurasian Golden Plover**

Population *altifrons*, Iceland & Faeroes (breeding)
Population *altifrons*, Northern Europe (breeding)
Population *altifrons*, West & north-central Siberia (breeding)

At least two and probably three populations of *altifrons* reach coastal zones of northern Africa during the non-breeding season, in the west as far south as Mauritania. Thévenot *et al.* (2003) detail counts of several thousand in Morocco, with an average of about 12,000 between 1991 and 1995. Up to 1,900 were censused around Constantine and near El Kala in Algeria in 1991/92 (Isenmann & Moali 2000), whilst wintering flocks in Tunisia may number in hundreds up to a few thousands (Isenmann *et al.* 2005). It is also a fairly common visitor to northern Libya (Toschi 1969), whilst in Egypt it is a rather scarce winter visitor (Miles 1998).

Population estimates have been established for the breeding populations from Iceland and Faeroes (930,000), Northern Europe (500,000-1,000,000) based on breeding data with trends of 'probably stable' and 'stable' respecitively, whilst the size and status of the West and north-central Siberia breeding population is unknown (Wetlands International 2006).

***Pluvialis fulva,* Pacific Golden Plover**

Population *fulva*, South-west & South Asia and North-east E Africa (non-breeding)
The non-breeding range of this plover includes North-east Africa, from the Horn of Africa as far south as Tanzania. It is never recorded in large numbers with 138 near Mogadishu, Somalia in March (Ash & Miskell 1998) being one of the higher counts. It regularly reaches the Tana River Delta and Sabaki River mouth in Kenya. There is a general lack of records from Africa, but then vast areas of (coastal) Somalia and other

countries are rarely visited by ornithologists. It is an annual migrant to the granitic islands of Seychelles, with a few sometimes remaining year round (Skerrett *et al.* 2001). This plover is a true wanderer, and there are records from various locations around Africa, including 26 counted on the Gabon coast in January-February 1992 (Schepers & Marteijn 1993).

Stroud *et al.* (2004) proposed a population estimate of 50,000-100,000. Numbers in Africa are probably never more than a few thousand, so the bulk of this population surely spends the northern winter in South-west and South Asia.

***Pluvialis squatarola,* Grey Plover**

Population *squatarola*, Eastern Atlantic (non-breeding)
This plover is a common and widespread non-breeding visitor to much of coastal West Africa to the Gulf of Guinea, also present on Gulf of Guinea islands and Cape Verde. The main breeding area is arctic Russia, whilst many birds also spend the northern winter in western Europe. Stroud *et al.* (2004) give a population estimate of 247,000, based largely on data from January counts (northern 'midwinter' counts). This estimate includes figures of 15,880 for Mauritania, 39,100 for Guinea-Bissau, 28,000 for Guinea, 7,200 for Sierra Leone and 1,500 for Ghana. In January 2001, Frikke *et al.* (2002) estimated 23,500 birds in the Bijagós Archipelago, Guinea-Bissau, whilst a reasonable number will also occur along the rest of this country's coastline. Hagemeijer *et al.* (2004) give a figure of 19,495 for Mauritania's Banc d'Arguin. Van der Winden *et al.* (2007) estimate between 5,400 and 6,500 for coastal wetlands of Sierra Leone. However, a large part of the non-breeding range is not adequately monitored, so some other figures used by Stroud *et al.* (2002) may well be under-estimates, as there is plenty of suitable habitat for this species in the tidal mudflats and mangrove areas of this region; for example their figure for Senegal is 4,783, whilst Schepers *et al.* (1998) estimated 6,000 for the Sine-Saloum alone, and sites such as the Casamance may well hold a similar number.

Birds from Cameroon south to South Africa are thought to belong to the population below, but the 'dividing line' is far from clear, and there is no doubt mixing of populations in the non-breedig areas.

There are a number of key sites for this population along coastal Africa, including the Banc d'Arguin in Mauritania, the Sine Saloum Delta of Senegal, the Bijagós Archipelago of Guinea-Bissau and coastal mudflats of Guinea-Bissau, Guinea and Sierra Leone.

It is recommended to provide a range for this population in order to account for gaps in coverage and some seemingly low national totals in Africa Stroud *et al.* (2004), whilst it is also not clear to which population birds belong in the Gulf of Guinea, especially between Nigeria and Gabon. A range of 200,000-300,000 is proposed, retaining the 1% level of 2,500.

Population *squatarola*, South-west Asia, Eastern and Southern Africa (non-breeding)
This population has a wide non-breeding range in Africa, spanning the eastern half of the continent from Egypt to South Africa, then along the Atlantic coast as far north as Angola, probably up to Cameroon, occurring on all coastlines in between. It also occurs in the Indian Ocean. It is an annual migrant in Seychelles in small numbers, with many first-year birds remaining year-round (Skerrett *et al.* 2001).

Stroud *et al.* (2004) present a thorough overview of non-breeding counts and estimates per country, which is not repeated here, producing a population estimate of 90,000 based on January (mid-winter in Europe) counts, also suggesting that this may be an under-estimate. Unfortunately, there are significant gaps in coverage in the AfWC in this wide region, and some important countries for this species are omitted in arriving at this estimate. There are, for instance, over 3,000km of Somali coastline, whilst this species is regularly recorded in Eritrea (Tiwari, *in litt.* 2002). Van Impe & Scott (in press 2009) consider that 60,000 may spend the northern winter in the Persian Gulf alone. Given the uncertainty about the size of this population, it is recommended to use a range instead, and 100,000-300,000 is suggested here, with a 1% threshld of 2,000. The trend of this population is unknown.

***Charadrius hiaticula,* Great Ringed Plover / Common Ringed Plover**

Population *hiaticula*, Western Europe & North Africa (non-breeding)
Stroud *et al.* (2004) provide a population estimate of 73,000 based on the total of January counts from the non-breeding range. In Africa, this range includes Morocco north of 28°N, Algeria, Tunisia and Libya. This figure is likely to be an under-estimate, using figures of nearly 15,000 for Morocco, but rather low figures of 38 for Algeria, 306 for Tunisia and 0 (unknown) for Libya. Improved coverage of these countries will surely result in a higher population estimate in future.

Population *psammodroma / hiaticula*, West & Southern Africa (non-breeding)
The non-breeding range of this population is essentially the western seaboard of Africa, where it is a common and regular wader in almost all coastal habitats in varying numbers, including coastal lagoons and other wetlands further inland. 24,010 were counted in the January 1998 AfWC in West Africa, 430 in Central Africa and over 700 in South-western Africa (Dodman *et al.* 1999), but many important coastal areas were omitted from the surveys during this year. In January 1997, the figure for West Africa alone was 78,319 (Dodman *et al.* 1997), but this year too the Bijagós Archipelago was omitted from the count, where were an estimated 33,000 in 1994 and 16,000 in 2001 (Frikke *et al.* 2002, Dodman & Sá 2005). C. Smit (*in litt.* 2002) reports of 60,005 in the Banc d'Arguin in January 2001.

The simple addition of a couple of important sites can thus produce significant increases in the population estimate. Stroud *et al.* (2004) use a figure of 187,207 for this population in Africa, which seems a good figure for the countries / coastal areas covered. However, data from a few potentially important countries are clearly missing, such as Nigeria, whilst very low figures are used for other countries (e.g. 2 for Côte d'Ivoire). Given that there are counts of at least 6,000 from Senegal's Sine Saloum, a coastal wetland of mangroves and mudflats, it would seem likely that the Niger Delta, which has Africa's largest expanse of mangroves, might support much higher numbers of ringed plover than this and many other coastal sites. It would seem likely that there may be at least 250,000 in Africa during the northern winter. However, it is hard to establish a reasonable estimate based on data from non-breeding destinations, as there is significant mixing of populations, with *tundrae* (see below) reported from many countries, from Cape Verde to Nigeria (Hazevoet 2007, Elgood *et al.* 1994). A more reliable estimate may potentially be arrived at from breeding data, and an overall estimate of 80,500-111,000 pairs (equivalent to about 240,000-330,000 birds) may be arrived at based on breeding data from Greenland, north-eastern Canada, Iceland and the Faeroes (Davidson & Scott in press 2009). The population is thought to be in decline, with decreases in the late 1990s noted for the Banc d'Arguin and the Bijagós Archipelago.

Population *tundrae*, South-west Asia, sub-Saharan Africa (non-breeding)
This population has an extensive non-breeding across sub-Saharan Africa and South-west Asia, including much of Western Africa, where it mixes with *psammadroma*. This plover can be fairly numerous at sites inland as well as at the coast; e.g. 13,600 were estimated from the Kenyan part of Lake Turkana in February 1992 (Bennun & Fasola 1996). This population is also an annual migrant to Indian Ocean islands and Madagascar. Count data indicate significant gaps in coverage across the non-breeding range. Stroud *et al.* (2004) gave an estimate of 145,000-280,000 based largely on breeding data from Europe, but Wetlands International (2006) adopted a much broader estimate of D (100,000-1,000,000) to account for extensive an breeding range in Russia. Probably the lower figure in this range could be revised upwards to 500,000. The trend is unknown.

***Charadrius dubius,* Little Ringed Plover**

Two populations of the subspecies *curonicus* of this plover occur in Africa. Throughout, it generally favours freshwater habitats, in contrast to *C. hiaticula*, which is much more numerous at the coast.

Population *curonicus*, West & Central Europe and North-west Africa (breeding)
The main non-breeding range is West Africa from Mauritania through to Central Africa, though the eastern extent is not well known. It is generally more widespread than *C. hiaticula*, being more common inland, probably occurring at a much lower density at a greater range of sites, including Sahelian ephemeral wetlands. Brouwer & Mullié (2001) suggest an average national non-breeding population of 6,879 for Niger. However, it never appears to occur in large numbers, and counts in the AfWC only produce very low figures, e.g. 1,165 recorded in West Africa in January 1998, compared to 24,010 C. *hiaticula* (AfWC database) If the estimate for this population was based on non-breeding data (as is the case for *C. hiaticula*) it would be significantly lower than that of *C. hiaticula*. Stroud *et al.* (2004) gave a population estimate of 180,000-290,000 based on breeding data, which was increased slightly to 200,000-300,000 by Wetlands International (2006). Breeding numbers in North-west Africa from Morocco to Tunisia are low, although the breeding range is quite wide, with breeding recorded from coastal and highland areas inland in Morocco.

Population *curonicus*, Eastern Europe and Western Asia (breeding)
The regular non-breeding range includes the Arabian Peninsula and North-east and Eastern Africa as far south as Tanzania. The western limit of this range is not well established. Birds of northern Democratic Republic of Congo presumably belong to this population. Here, Chapin (1939) found them to be frequent during the dry season (northern winter) especially in open places around villages, cow-sheds and pastures. Only low hundreds are usually recorded in the AfWC in Eastern Africa, but this is a non-congregatory bird, which may be encountered over a wide range at almost any type of freshwater wetland or close to villages

where there is access to water. There are only occasional records further south of East Africa, including several records from Zambia, which is at the southern limit of its non-breeding range (Dowsett *et al.* 1999). Unlike *C. hiaticula*, this population is not a regular migrant to Indian Ocean islands. Fishpool & Evans (2001) proposed a population estimate of B/C and a 1% level of 250. This is clearly an under-estimate, as breeding data suggest there are about 130,000-420,000 birds in European Russia, Turkey, Armenia and Azerbaijan, whilst the presumably large number of birds breeding in West and South-west Asia is unkown (Kirby & Scott in press 2009). Wetlands International do not use an estimate in the *WPE* series, and the trend is unknown. The small number of birds breeding in Egypt presumably belong to this population.

***Charadrius thoracicus,* Black-banded Plover / Madagascar Plover**

There is one population, *thoracicus*, restricted to southern and western coastal Madagascar, where it prefers dry, grazed grassland, often visiting margins of shallow brackish marshes and ponds, and sometimes on beaches or estuarine flats (Langrand 1990). F. Hawkins (*in litt.* 2002) indicated that it occurs along about 1,200km of coastline, at densities of probably between 0.1 and 1 pair per kilometre, with probably 25-50 bays or inlets with 1-10 pairs in each, plus 10 bays or inlets with 10-20 pairs. This produced a provisional total estimate of 750-6000 individuals. More recently, Long *et al.* (2008) used a habitat suitability model and mean density data to estimate a population of 3,100+/- 396 (2,704-3,496) individuals. It is recorded from 8 IBAs of the West Malagasy wetlands Endemic Bird Area, with counts including 19 at Baly Bay National Park, 61 at Tambohorano wetlands, 46 each at Tsiribihina and Mangoky deltas, 55 at Tsimanampetsotse and 25 at the south-western coastal wetlands (Project ZICOMA 2001). This is without doubt a restricted-range species, and the Globally Threatened status of Vulnerable is justified. Based on Long *et al.* (2008), Dodman & Delany (in press 2009) use an estimate of 3,100 and a 1% level of 31. This is somewhat higher than the 1% level of 10 used by the IBA Africa programme (Fishpool & Evans 2001).

***Charadrius sanctaehelenae,* St. Helena Plover / Wirebird**

There is one population, *sanctaehelenae*, of this globally Endangered species restricted to the Atlantic island of St. Helena, whose status was updated to Critically Endangered from Vulnerable in 2008, as the small population is decreasing rapidly within a restricted geographic range (BirdLife International 2008). The population has been quite well studied, at least intermittently. There were about 450 birds in 1988-1989, 315 in 1993, increasing to 435 birds in February-March 2001 (Rowlands 2001). There were decreases in the 1990s due to habitat degradation, but this had levelled out following less grazing of livestock for economic reasons (Rowlands 2001). However, surveys in 2005-2006 only found 200-220 mature birds (BirdLife International 2008). The current population trend is thus decreasing, though hopefully this may be reversed, should additional conservation measures be put in place. The potential development of an international airport on St. Helena may such measures difficult to achieve. The population occurs in two main areas, with about 335 formerly in the north-east and about 100 in the south-west (Rowlands 2001).]

***Charadrius pecuarius,* Kittlitz's Plover / Kittlitz's Sandplover**

There are between one and four races of *C. pecuarius*, with some authors preferring to treat this species as monotypic, e.g. Hayman *et al.* (1986). Here, all four potential races are treated as separate populations of *pecuarius*. Fishpool & Evans (2001) provided an estimate of 'C+' for all three populations, and a 1% level of 1,000. The trends for all populations are unknown.

Population *pecuarius*, Eastern, Central & Southern Africa

This is a common and widespread bird in Eastern and Southern Africa, especially on floodplains and on sandy beaches. This population includes '*tephricolor'*, described from northern Namibia, but this form is not widely accepted. Parker (1999) estimates 5,000 for southern Mozambique. In Zambia, there are 1,000+ on the Barotse floodplain and 1,000 + at Bangweulu, whilst 5,000-6,000 were recorded on the Kafue Flats in October 2000, with breeding taking place at all three sites (Leonard 2001). There are a number of other sites where over 1,000 have been recorded, including 1,538 at Nyumba ya Mungu in Tanzania in January 1995 (Baker & Baker 2001), a year when over 6,000 were recorded in the East Africa AfWC (Dodman & Taylor 1995). Bennun & Fasola (1996) estimate 8,600 for the Kenyan part of Lake Turkana. This species is common in Somalia (Ash & Miskell 1983); the long Somali coastline and coastal flats surely support fairly substantial numbers. This population appears to be resident in some areas and migratory in others, presumably moving according to flooding regimes and rainfall. In Zambia, nests on the Kafue Flats risk being drowned by unseasonal flooding regimes imposed by control of water flow by large dams.

Parker (*in litt.* 2002) provided an estimate of 50,000-100,000 with a provisional 1% level of 750. The population may surely number at least 60,000 in Eastern Africa (>30,000 in North-east Africa, including

Sudan, >20,000 in Kenya, 10,000-20,000 in Tanzania (Baker 1996) and >10,000 in eastern Central Africa from Uganda to south Democratic Republic of Congo), and at least 50,000 in Southern Africa (>20,000 in Zambia, >10,000 in Malawi and Mozambique, >10,000 in South Africa, Zimbabwe, Botswana, Swaziland & Lesotho and >10,000 in Namibia and Angola). This suggests that the population is over 100,000. It is difficult to set an upper limit for this widespread population, but the upper limit of D (1,000,000) would seem to be too high, given the general lack of high counts (>1,000). Dodman (2002) proposed a provisional upper limit of 400,000, which Tree (*in litt.* 2008) considered too high, and suggested a population estimate of 80,000-150,000. Due to some high counts in Eastern Africa, this is considered too low, and a revised estimate of 120,000-250,000 is proposed.

Population *pecuarius*, West Africa

This population occurs from southern Mauritania to the Lake Chad Basin, down to the coast around the Dahomey gap east to Nigeria, where Elgood et al. (1994) find no evidence of seasonal movement. It is not found in the forest block. 2,783 were recorded in the January 1998 AfWC census (Dodman *et al.* 1999). It is generally common throughout much of the Sahel zone, found in short grasslands and floodplains. Brouwer & Mullié (2001) provide a national population estimate for Niger of 875, based on AfWC data from 1994-1997. Parker (*in litt.* 2002) suggests a population of 10,000-20,000, including birds of coastal Gabon, which would be better placed in the Eastern, Central and Southern Africa population, as there appears to be a break in distribution between Nigeria and Gabon. Indeed, none were recorded in coastal surveys of Cameroon in 1998 and 2007 (Dodman *et al.* 1999, Van der Waarde 2007). Nevertheless, this population estimate seems too low, as many areas of this species' range in West Africa are not regularly monitored. Indeed, it can be found at numerous small wetlands, such as the urban Niayes lagoons of Dakar, Senegal (pers. obs.). A preferred range is 20,000-50,000, with a mid-point 1% level of 350.

Population *pecuarius*, Madagascar

Kittlitz's Plover is fairly widespread in a coastal band from southern to western Madagascar, and is also fairly common in the east whilst it is seasonal on the high plateau (Langrand 1990). 338 were recorded in the AfWC of July 1997, with 238 at Lac Ihotry in the west, and 167 in southern Madagascar in April 1998, though only 10 were recorded in the January 1998 AfWC, coverage normally being greater in Janualry than in July (Dodman *et al.* 1999). Parker (*in litt.* 2002) provides a provisional estimate of 10,000-20,000 in Madagascar, which is adopted in WPE3 and WPE4, with a 1% threshold of 150.

Population *allenbyi*, Nile Valley

Kittlitz's Plover is a rare breeding bird in Egypt, with most records coming from the Nile Delta and northern lakes of the Nile Valley. Around 200 pairs breed on Wadi el Natrun, whilst breeding is confirmed from other lakes in/around the delta; breeding has also been confirmed from Abu Simbel, Lake Nasser, far south of the usual sites (Miles 1998, Goodman & Meininger 1989). Kittlitz's Plover is a regular visitor to Israel during the northern winter in small numbers (Porter *et al.* 1996). Parker (*in litt.* 2002) suggested a population of 1,000-5,000, which was adopted in WPE3 and WPE4, with a 1% threshold of 30. The total population is likely to be towards the lower end of this range.

***Charadrius tricollaris,* Three-banded Plover**

Population *tricollaris*, Eastern and Southern Africa

This population shows migratory movements in Southern Africa, with birds moving northwards through Zimbabwe between April and July to moister regions (Tree 2003). Tree (1997) considers it a dry season (May to August) visitor to Zambia, though it is regularly recorded in small numbers in Zambia in the January AfWC (AfWC reports). It probably moves fairly small distances in response to local conditions, further afield at times. This species is considered widespread and common throughout much of Eastern Africa, including western Somaliland (Ash & Miskell 1998). 441 were recorded in East Africa in the January 1995 AfWC (Dodman & Taylor 1995). However, this species is easily missed during counts and is not congregatory, occurring instead on a wide range of wetlands, both coastal and inland, perhaps at almost any wetland, but in low numbers at each.

Underhill *et al.* (1999) give an estimate of 40,000-70,000 birds in Southern Africa, whilst Tree (1997) gives a lower estimate of 25,000-50,000 for the sub-region, though considers it to be increasing due to the growth of artificial wetlands, such as dams. Fishpool & Evans (2001) estimate a population of 'C+' for this species (all populations), giving a 1% threshold of 1,000. Parker (*in litt*. 2002) provides an estimate of 40,000-100,000. It is expected that the population is similar in Eastern Africa as it is in Southern Africa, perhaps marginally less, so, using the estimate of Underhill *et al.* (1999), a new estimate is proposed of 70,000-130,000, with a mid-point 1% level of 1,000.

[Population *tricollaris*, Lake Chad Basin
The Three-banded Plover occurs in Central and Northern Nigeria and Cameroon and Western Chad, but its status here is not clear. Elgood *et al.* (1994) consider it to be a non-breeding dry season visitor from August to February, but Borrow and Demey (2001) describe it as an uncommon and local resident. There are occasional records of vagrants further west, including southern Mali, southern Ghana and a record from Bouaké, Côte d'Ivoire in August 1993 (Cable 1994). Its main distribution though is in the Lake Chad Basin, where local movements probably occur. These birds are treated here as a discrete population. If they are mainly resident, then they are geographically separate from *tricollaris* in Central, Eastern and Southern Africa (see above), with a gap in distribution from Central and Southern Cameroon to coastal Gabon and south of the Congo River. If they are non-breeding visitors, the non-breeding distribution appears to be fairly well established, with no regular records in neighbouring zones, so this would most likely constitute a discrete non-breeding population. The population is likely not to exceed 5,000 individuals. However, a broader population estimate of A is given and a provisional 1% threshold of 50 proposed.

Population *bifrontatus*, Madagascar
This species is common in western and northern Madagascar (Langrand 1990). Parker (*in litt*. 2002) suggests a population of 10,000-30,000, assuming densities in Madagascar are similar to those in Central Africa. This estimate could be rather high, but in the absence of conflicting information to date, is adopted here, with a 1% level of 200.]

***Charadrius forbesi,* Forbes's Plover**

This monotypic species breeds from Ghana to northern Angola, south-western Sudan, western Uganda, western Tanzania and central Zambia (Scott 2002), and also occurs more widely in West Africa from Senegal east to Central Africa. It is a non-breeding visitor over much of its range, moving to rocky hillsides during the rainy season to breed (Scott 2002), also nesting in gravel stream beds. It is thus seasonally migratory, though its movements are not very clear. There are very few records of this species during the AfWC, but this is not a congregatory wetland bird, more often found on grassland and farmland, especially where burning has recently occurred. Fishpool & Evans (2001) suggest that the population is in range B/C (10,000-100,000), and use a 1% level of 250 for the IBA Africa Programme. Tree (*in litt.* 2008) considers the upper limit too high for such a sparse bird, and proposes an estimate of 10,000-50,000 birds, which is adopted here, with a 1% threshold of 300.

***Charadrius pallidus,* Chestnut-banded Plover / Chestnut-banded Sandplover**

Population *pallidus*, Southern Africa
The Chestnut-banded Plover is a specialist of saline habitats, and in Southern Africa occurs in southern Angola and Namibia, in northern Botswana and in South Africa. It is also an occasional visitor to Mozambique (Parker 1999). The population breeds mainly at Etosha Pan in Namibia and the Makgadikgadi Pans in Botswana. Outside the breeding season, birds concentrate at two coastal wetlands in Namibia, Sandwich Harbour and Walvis Bay (Tree 1997). The total population was estimated at 6,000-7,000 by Tree (1997), but was increased to 11,200 in *WPE3* on the basis of a simultaneous count of 11,192 birds in Namibia (Simmons 2000). Simmons *et al.* (2001) give non-breeding figures of 166-550 for Etosha, 1,810-6,040 for Walvis Bay and 170-5,590 for Sandwich Harbour, apparently breeding at all these sites. In South Africa, there are counts of 193 and 71 at two sites in the Western Cape. In Botswana, 20 were seen at Rysana Pan in the Makgadikgadi system in July 2000, with 144 in August 2000 and 235 in January 2001 (Tyler 2001). This species is also found at other sites in this area, such as Mea Pan, the Nata Delta and along the Boteti River.

In a more recent assessment, Simmons *et al*. (2007) documented 11,486 birds from July 1998, and also provided evidence to warrant assigning the species as Near-Threatened on account of their high dependence on a limited number of sites. More recent data have indicated regional counts of >13,000 in July 2003 and 15,362 for July 2004 (AfWC database). Due to the apparently fluctuating nature of the population and these recent counts, some of which are based on extrapolations, it is considered that a range is more appropriate for this population, proposed as 11,000-16,000, with a 1% threshold of 140. There have been no apparent changes in the distribution of *pallidus* since the beginning of the 20th century, although the development of salt works may have led to an increase in the size of the coastal population (Tree 1997). An earlier estimate of B/C (10,000-100,000) by Fishpool & Evans (2001) is clearly too high.
UPDATE: IWC. 11,490 in January 2008.

Population *venustus*, Southern Kenya and Tanzania
C. p. venustus is confined to Rift Valley soda lakes on the border of Kenya and Tanzania, making local movements up and down the Rift Valley. Breeding sites include Lakes Magadi, Natron, Manyara, Lygarja, Masek and near Dodoma (Britton 1980). At Magadi, Bennun & Njoroge (1999) describe the breeding population as

'sizeable'; up to 474 individuals have been recorded here. The highest count during the AfWC (up to and including 1998) was 1,370 in January 1995 (Dodman & Taylor 1995), but in most years, far fewer than this are recorded, and the estimate of B (10,000-25,000) by Fishpool & Evans (2001) is certainly too high. Baker (1997) gave an estimate of 3,500 birds for Tanzania, and Parker (*in litt.* 2002) proposed a more conservative estimate of 4,000-5,000. However, a recent count of 4,357 from the Tanzanian shores of Lake Natron in January 2005 (at 75% coverage), when 529 were also recorded at Lake Magadi in Kenya as well as >500 from other sites in Tanzania, indicate that the population must be higher than this. This results in a new population estimate of 6,500 based on (rounded from the 6,338 proposed by Simmons *et al.* (2007)). The population is clearly small, and it would seem necessary to focus some attention on conservation of this species in East, as well as Southern Africa.

***[Charadrius alexandrinus,* Kentish Plover**

Population *alexandrinus*, East Atlantic and West Mediterranean (breeding)
Small numbers of Kentish plover breed along the Atlantic coast of Africa as far south as Senegal and Cape Verde, and these birds are likely to be sedentary. However, the bulk of the population breeds further north, coming to West Africa as non-breeding visitors. Although it does occur at inland Sahelian wetlands, e.g. 54 at Hadejia-Nguru, Nigeria in January 1998 (Dodman *et al.* 1999) and along the coasts as far east as the Gulf of Guinea, it is rare in these areas. Brouwer & Mullié (2001) give an average national estimate for Niger of 351, based on AfWC data from 1994-1997. However, the main non-breeding zone is the West-facing Atlantic seaboard from Mauritania to Guinea-Bissau. The origin of birds in eastern West Africa is not clear; these may well belong to the Black Sea / East Mediterranean breeding population (see below).

There appear to have been declines in numbers at breeding sites in Europe, and declines have recently been noted in the main non-breeding sites of the Banc d'Arguin, Mauritania and the Bijagós Archipelago, Guinea-Bissau. 8,694 were recorded in the January 1998 AfWC in West Africa (Dodman *et al.* 1999), though this excluded the Banc d'Arguin and the Bijagós, where Frikke *et al.* (2002) estimated only 1,000 in January 2001, compared to 9,100 here in 1986/87. 6,045 were counted at the Banc d'Arguin in January 2001 (C. Smit, *in litt.* 2002). Declines overall in West Africa in recent years would appear to be in the order of 55-65%. A marked contraction is also noted in its breeding range in North-west and Central Europe. Some of the small breeding colonies in the Atlantic islands also appear to be in decline (Canaries, Azores, Madeira, Cape Verde).

Stroud *et al.* (2004) give an estimate of 62,000-70,000 for this population and a trend of declining, based on breeding data in Europe and allowing for an estimated 7,500 birds in North-west Africa. This plover is a widespread breeding bird in Morocco with a population of 'several thousand pairs' (Thévenot *et al.* 2003). Although recent totals in Mauritania and Guinea-Bissau do not match this estimate, the numbers of birds scattered throughout West Africa in smaller concentrations may represent a more significant proportion of the population than previously thought. The 1% threshold is 660.

Population *alexandrinus*, Black Sea and East Mediterranean (breeding)
Most birds of this population are non-breeding visitors to North Africa and probably also to eastern West Africa, where there is likely to be overlap with the 'East Atlantic' population (see above). Concentrations are recorded in Egypt, where Meininger & Mullié (1981) estimated 15,000-20,000 at lakes of the Nile Delta. Atta *et al.* (1994) estimated 10,000 here in 1989/1990, so this population may well be in decline. One threat in Egypt appears to be from hunting pressure. However, birds from South-west Asia may also reach the Nile Delta. The Kentish Plover is a common non-breeding visitor to the Nile valley in Sudan, with a count, for instance, of 3,500 at Umshujaira close to Khartoum in February 2006. However, this may involve birds of either or both of this population and the South-west Asia population (see below).

Stroud *et al.* (2004) give a population estimate of 32,000-49,000, based on national estimates of breeding populations collated by Thorup (2006). A 1% threshold of 410 applies. It seems that this population is also in decline, most likely due to disturbance at breeding sites and destruction of breeding habitat, whilst hunting may also have an impact (Meinenger *et al.* in press 2009). There is limited monitoring of the population in Africa, where most data comes from Egypt. Here, there is an estimated breeding population of 5,000 pairs, probably of >1,000 pairs along the Nile Delta lakes and of about 1,900 pairs along Lake Bardawil, with other smaller breeding sites as well (Miles 1998, Goodman & Meininger 1989).

Population *alexandrinus*, South-west Asia & North-east Africa (breeding)
The non-breeding range of this population includes North-east Africa, as far south as Lake Turkana, Kenya, with only rather occasional records further south. However, the Kentish Plover also breeds in North-east Africa in small numbers, as far south as the Red Sea Somali coastline, where it is a common breeding resident (Ash & Miskell 1998). Birds breeding further north in South-west Asia migrate south for the northern winter, with North-east Africa the main destination area for at least some of them. These birds probably perform a leap-

frog migration over more resident Afrotropical breeders of the Red Sea coastal belt, pushing further south, especially down the Indian Ocean coastline of Somalia. There may be extensive overlap with the Black Sea and East Mediterranean breeding population, especially in Egypt. The number of birds present in Africa is not well known, though there are estimates of 11,500 in the Arabian Gulf based on Zwarts *et al.* (1991). Stroud *et al.* (2004) gave a population estimate of C, which was adopted in WPE3 and WPE4 with a provisional 1% threshold of 1,000.]

***Charadrius marginatus,* White-fronted Plover / White-fronted Sandplover**

A number of different races have been described for this species, with usually between 4 and 5 accepted by most authors. There is no clear picture or agreement on the description of different races and populations, so there is likely to be future changes to the groupings given below. No attempt is made to authenticate the status of individual races. Fishpool & Evans (2001) give a population estimate of C/D for this species, using a 1% level of 1,000 for the IBA Africa Programme.

Population *marginatus,* South-west coast of Africa from the Western Cape to south-central Namibia
Summers *et al.* (1987) estimated the population as 18,000, though this included some of *arenaceus*. Parker (*in litt.* 2002) considered this to be conservative and suggested retention of this figure for *marginatus* alone. However, this assumed a distribution of *marginatus* from the West Cape north to central Angola, whilst a good proportion of birds within this range are now ascribed to *arenaceus*. There are 2,000-4,000 in West Coast National Park in South Africa (Barnes 1998). A new estimate of 10,000 with a 1% threshold of 100 is proposed for this population, based on former estimates, recent count data and densities. The estimate of 18,000 for *marginatus* in *WPE3* and *WPE4* includes a large number of birds here assigned to *arenaceus*.

Population *tenellus,* Madagascar
F. Hawkins (*in litt.*) reports that this species is usually considerably commoner than *C. thoracicus* in Madagascar, with larger groups and a wider ecological tolerance, estimating the population at 5,000-15,000 individuals. This range is adopted here with a 1% threshold of 100.

Population *tenellus,* Coastal Eastern Africa
This population ranges from northern Mozambique to southern Somalia, and includes the proposed form *pons*. Hayman *et al.* (1986) consider East African birds as being part of *tenellus*. Zimmerman *et al.* (1996) also follow this treatment. Some authors, e.g. Hayman *et al.* (1986) ascribe birds of southern Somalia to race *pons*. However, there does not appear to be a break in distribution on the coastline between Somalia and Tanzania, and, for ease, these coastal birds are treated as one population. Ash & Miskell (1998) consider birds in southern Somalia as tenellus, and describe it here as a common breeding Afrotropical resident, confined mostly to sandy beaches along the coast.

This is a fairly common bird along the coasts of Kenya and Tanzania, with up to 1,070 recorded at the Tana River Delta, where there are seasonal variations in numbers (Bennun & Njoroge 1999). Baker (1996) considers that there may well be some 5,000 birds along the coast of Tanzania. 500 birds were counted at Sencara Island in the Quirimbas Archipelago of northern Mozambique in July 2003 (Bento in Diagana & Dodman 2007). Parker (*in litt.* 2002) treats these coastal birds as one population (*mechowi*), giving a population estimate of 15,000-20,000. An estimate of 15,000-25,000 is proposed here based on 5,000 on the Tanzania coast (although there may be additional birds on east-flowing rivers such as the Rufiji), some 5,000-7,500 on the Kenya coast and east-flowing rivers, perhaps 2,500-7,500 in southern Somalia, and some 2,500-5,000 in northern Mozambique. This estimate was adopted for this population in *WPE3* and *WPE4*, although the birds were assigned to *mechowi*. A 1% threshold of 200 applies.

Population *mechowi/tenellus,* Inland East & Central Africa
The White-fronted Plover is quite wide-ranging in inland Africa, where it favours lakeshores and sandy margins of rivers. Birds from the Rift Valley are included in this population. Baker (1996) estimates that there may be some 3,000 birds in inland waters in Tanzania. It is scarce in Uganda (Carswell *et al.* 2005), whilst in the interior of Kenya it is only numerous at Lake Turkana in the north (Lewis & Pomeroy 1989). Parker (*in litt.* 2002) suggested a population of 10,000-15,000. Although there is a general lack of data from a number of potential sites, this estimate is provisionally adopted here, with a 1% threshold of 130.

Population *mechowi* West coast of Africa from Angola to Cameroon
The population density appears to be generally low. Van der Waarde (2007) estimated between 40 and 60 birds along the Cameroon coast in January-February 2007, most birds occurring on the Sanaga River. An estimate of 3,500 is proposed for this resident coastal population, based on estimates for each country within the population's range (Angola 1,000, Congo 500, Democratic Republic of Congo 100, Gabon 1,000,

Equatorial Guinea 250 and Cameroon 650). In *WPE4*, these birds were included in a single enlarged population of *arenaceus*.

Population *mechowi* West Africa
The White-fronted Plover is fairly widespread along the West African coast from Senegal Cameroon, though densities are low, and and co-ordinated counts along the coast from Mauritania to Sierra Leone in January 2006 yielded only 52 birds. It also occurs inland, especially on the Niger and Benue Rivers and in the Lake Chad Basin. Birds on the mid-upper Niger have been ascribed as *nigirius*, whilst birds of the Rio de Oro have been described as *spatzi*. All are included here as one West Africa population, as far east as the Central African Republic. Brouwer & Mullié (2001) suggest an average population of 86 for Niger, based on AfWC counts from 1994-1997, also suggesting a species estimate of D for all Africa. Parker (*in litt*. 2002) suggests there are 10,000-15,000 in West Africa. Whilst this could be an under-estimate, in the lack of further conflicting information, this estimate is adopted here.

Population *arenaceus,* South-eastern African coast
This population occurs on the south-east coast of Africa from Mozambique to the Eastern Cape of South Africa. Parker (1999) estimates 2,000 for southern Mozambique, south of the Save River. Based on counts from South Africa, this estimate for south Mozambique and on expected densities along the coast, Parker (*in litt.* 2002) gives a population estimate of 8,000-12,000, which is adopted here with a 1% threshold of 100. Calculations based on densities along relative lengths of the coastline, taking into account lower densities on the east coast compared to the west (Summers *et al.* 1987) and using the estimate above for southern Mozambique yield a figure of 10,000, which agrees well with the earlier estimate.

Population *arenaceus,* South-west African coast
The extent of this population is considered as occurring from south-central Namibia to central Angola. An estimate of 10,000 is proposed for this newly defined population, based on densities in coastal Namibia of 2.0-6.5 birds per kilometre given by Underhill & Whitelaw (1977), estimated lower densities in Angola, and known concentrations at Walvis Bay and Sandwich Harbour in Namibia; (2,000 in Angola, 4,000 in northern Namibia, 4,000 between Walvis Bay and Sandwich Harbour). The maximum counts at Walvis Bay and Sandwich Harbour in the 1990s were 1,610 and 2,540, respectively (Simmons *et al.* 1998). A 1% threshold of 100 applies.

***[Charadrius mongolus*, Lesser Sandplover / Mongolian Plover**

Population *pamirensis*, Central Asia (breeding)
This plover is a common non-breeding visitor to the East African coast and Rift Valley, mostly numerous on the coast. Up to 2,340 have been recorded at the Tana River Delta (Bennun & Njoroge 1999). There are regular records from Eritrea, and presumably a sizeable number may be found along the Somali coast, where it is a common visitor on spring and autumn passage at the coast (Ash & Miskell 1998). This seems especially likely given a recent count of 1,368 on the mudflats around Djibouti city in February 2001 (Welch & Welch 2001). Large flocks are sometimes seen during return passage along the Tanzania coast, where there could be significant feeding sites for these birds (Baker & Baker 2008). 476 were recorded in coastal Mozambique in January 1998, with 470 at Benguera Island in the Bazarutos Archipelago (Dodman *et al.* 1999). This is also an annual migrant to Seychelles, occurring throughout the islands in small numbers from September to April (Skerrett *et al.* 2001). It also occurs at other Indian Ocean islands and Madagascar.

Del Hoyo *et al.* (1996) estimated at least 30,000 for this population, whilst there have also been estimates of 28,000 for Saudi Arabian Gulf coast. Dodman (2002) considered that there were likely to be at least 20,000 on the entire Red Sea and Indian Ocean coastline of Africa, and proposed an estimate of 30,000-50,000. However, this range did not take into account the large numbers of *pamirensis* wintering on the coasts of Pakistan, western India and Sri Lanka, and Wetlands International (2006) adopted a new estimate of 100,000-150,000 for the total population of *pamirensis*, taking into account an estimate of 100,000 for India by S. Balachandran (*in litt.* 2005). The population trend is unknown.

***Charadrius leschenaultii,* Greater Sandplover**

Three populations of Greater Sandplover occur in Africa, all as non-breeding visitors from the Mediterranean to Central Asia. Globally the bird has a wide range, with birds from breeding areas further east in Asia spending the northern winter in Asia and Australasia. In all areas it is essentially coastal outside of the breeding season. The conservation status of all populations below is unknown.

Population *leschenaultii*, Eastern Africa & Indian Ocean islands (non-breeding)

The non-breeding range of this population is East & South-eastern Africa and the Indian Ocean islands, though there has been some confusion as to the race of East African birds (see under *crassirostris* below). This is an annual migrant in Seychelles in small numbers (Skerrett *et al.* 2001). 3,652 were recorded in Africa in the January 1998 AfWC, including 3,570 in Tanzania, of which 1,705 were at Chwaka, Zanzibar (Dodman *et al.* 1999). 4,201 were recorded in Tanzania during the January 1995 AfWC (Dodman & Taylor 1995), including 1,823 at Mnazi Bay and 2,200 at Kibo saltpans north of Tanga (Baker & Baker 2001). 1,250 have been recorded at Mida Creek, Kenya (Seys *et al.* 1995). There are also records from inland East Africa in small numbers. There are likely to be >10,000 on the Tanzania coast, perhaps some 10,000 in Somalia and Kenya, and probably >10,000 for all other areas, resulting in an estimate of 25,000-50,000. A mid-point 1% level of 380 applies.

Population *columbinus,* East Mediterranean (breeding)
This is a small population breeding mainly in Turkey, Syria and Israel, probably eastwards to Iran. Stroud *et al.* (2004) give a population estimate of <10,000, with the main breeding population being in Turkey. This population reaches coastal Africa in the Red Sea and Gulf of Aden, though here it overlaps with *crassirostris*. The provisional 1% threshold is 100 birds.

Population *crassirostris*, South-west Asia (breeding)
Hirschfeld *et al.* (2000) have established that the main non-breeding range of *crassirostris* encompasses the shores of the Red Sea, Gulf of Aden and Persian Gulf. The main breeding area is from the Caucasus and South-west / Central Asia from the Caspian Sea to Kazakhstan. Stroud *et al.* (2004) give a population estimate of C (25,000-100,000), and a provisional 1% threshold of 1,000 is applied.

***Charadrius asiaticus,* Caspian Plover/ Caspian Sandplover**

This monotypic species breeds in Western Asia, passes through South-west Asia on migration and spends the main part of its non-breeding season in sub-Saharan Africa. There are two main non-breeding areas in Africa – the upland plains of south-west Kenya and northern Tanzania, especially the Serengeti (Britton 1980) and in Botswana, northern Namibia and western Zambia and Zimbabwe, though in Zambia it occurs mainly on its southward migration. There are quite regular records of large flocks of Caspian Plover in Africa, many of these being of birds on the move.

Perhaps the largest count is of 30,000-35,000 in the Kafue Flats, Zambia in November 1995, whilst there are smaller numbers from Liuwa Plain, Barotse Floodplain and Kafue National Park (Leonard 2001). On the non-breeding grounds in Southern Africa, the Caspian Plover would appear to be fairly well scattered, as there are few records of substantial flocks from Namibia, Botswana, South Africa and Zimbabwe, though flocks of 600-1,000 have been reported from Botswana (Scott 2002); flocks of 600-1,000 were not uncommon on the larger pans (eg Mwaku, Tale, Xai) in the northern half of Botswana in November/December in the period 1969-1971 (T. Tree *in litt.* 2008). Simmons *et al.* (2001) give a range of 119-382 for Etosha and 50-200 for Tsumkwe Pan system in Namibia. Harrison *et al.* (1997) suggest there has been a contraction in the non-breeding range in Southern Africa during the 20th Century.

In Tanzania, 'several thousands' were present in Serengeti National Park and many hundreds at Ngorongoro in 1989, whilst 3,302 were at Lake Manyara, 2,100 at Singida Lakes, >200 at Longido and one flock of 2,595 in the Serengeti in January 1995 (Baker 1996, Baker & Baker 2002). More recently, Peterson & Zvulun (2007) found 1,678 in the Eyasi-Yaida Basin (also in northern Tanzania) in January 2005. Up to 12,500 have been recorded in Kenya and Sudan (Scott 2002), whilst Bennun & Fasola (1996) estimated that there were 500 at Lake Turkana, Kenya, in February 1992. Further inland, there are counts of over 1,000 from western Uganda (Carswell *et al.* 2005), whilst flocks of >1,000 have been recorded from the southern Somali coast (Ash & Miskell 1998).

Fishpool & Evans (2001) considered the population to be in the order of 20,000. However, it would seem from these data that >30,000 may be present in Southern Africa during the non-breeding season, and around 10,000-20,000 in East Africa. A population estimate is thus proposed of 40,000-55,000, with a mid-point 1% threshold of 480. It may be that these two populations are discrete. Certainly this species merits closer monitoring, especially given reported declines in the breeding range. Its overall status is declining.

***Eudromias morinellus,* Eurasian Dotterel**

Population *morinellus*, Europe (breeding)
The main non-breeding range of this population is the semi-arid zone of North Africa, from Morocco to Libya, where it is scattered quite widely in arid and semi-arid habitats. In Tunisia, Isenmann *et al.* (2005) consider the

"pre-desert areas of the Maghreb to be a wintering area par excellence". The breeding range is widespread across Europe in arctic-alpine areas. Wetlands International (2006) give a population estimate of 40,000-120,000 and a 1% threshold of 800, based on breeding data collated by Thorup (2006) and BirdLife International (2004). The population appears to be stable or possibly decreasing.

Population *morinellus*, Asia (breeding)
This population is poorly known, both in its vast breeding range in Asia and its non-breeding area, which includes eastern North Africa. It is a scarce witer visitor to the north of Egypt (Goodman & Meininger 1989). An estimate of B/C is used in all four editions of the Waterbird Population Estimates based on Perennou *et al.* (1994), with a provisional population estimate of 1,000 and of unknown trend.

***Vanellus vanellus,* Northern Lapwing / Eurasian Lapwing**

Population *vanellus*, Europe (breeding)
The Northern Lapwing occurs widely across Western Europe, where they are largely migratory, with movements strong weather-dependent, but resident in the south-west of their range (Gillings & Wilson in review 2008). The non-breeding range includes North Africa from Morocco to Egypt, though this species also breeds in Morocco, where the breeding population was about 250 pairs in the 1970s, declining to a maximum of about 100 pairs in the 1990s (Thévenot *et al.* 2003). Highest counts during the northern winter come from Morocco, with records of up to 10,000 at Merja Zerga and >1,000 from some other sites (Thévenot *et al.* 2003), whilst 1,000 were counted in November 1984 at Sejnane, Tunisia (Isenmann *et al.* 2005). It occurs in coastal areas of Libya especially from December to March (Toschi 1939). In Egypt it is a common wintering bird mainly in the Nile Delta, whilst >2,000 have been counted along Nile cruises, including >900 at Lake Qarun in 1990 (Miles 1998). The estimate of 5,100,000-8,400,000 in WPE4 is based on breeding data collated by BirdLife International (2004). The population appears to be overall in decline.

Population *vanellus*, W Asia (breeding)
This population of the Northern Lapwing is less well known than the European breeding population. Movements have been reported between south-west Siberia and Western Europe (Veen *et al.* 2005). This population may well occur in North Africa during the northern winter at the limit of its non-breeding range, and at least some birds in Egypt may be from this population. Perennou *et al.* (1994) proposed a broad population estimate of C/D (25,000-1,000,000), which has been followed in all editions of Waterbird Population Estimates to date. Its status is unknown.]

***Vanellus crassirostris,* Long-toed Lapwing / Long-toed Plover / White-faced Lapwing**

Fishpool & Evans (2001) suggest a population of C/D, giving a 1% level of 1,000 for the IBA Africa Programme.

Population *crassirostris*, Eastern Africa: Southern Sudan to north Malawi
In Eastern Africa, the Long-toed Lapwing is a locally common resident in permanent swamps and swampy edges of lakes and rivers where there is abundant floating vegetation (Britton 1980). Its strongholds in the sub-region are the wetlands of Southern Sudan (notably the Sudd swamps) and Uganda. In Kenya and Tanzania it is mainly found in western wetlands, such as at Lake Victoria and the Ugalla River. It is found in Rift Valley wetlands of eastern Democratic Republic of Congo. 360 were recorded in the January 1998 AfWC, including 269 in Uganda, this being a year of fairly extensive coverage here (Dodman *et al.* 1999). 796 were recorded in Eastern Africa in the January 1995 AfWC, including 556 in Tanzania, a year of extensive coverage in this country (Dodman & Taylor 1995). There appears to be some overlap between *crassirostris* and *leucoptera* in southern Tanzania and north Malawi, as some intermediate birds occur here (Hayman *et al.* 1986).

There could well be tens of thousands (30,000?) in southern Sudan. In addition to this, there may be >10,000 in Uganda, around 5,000-10,000 in Kenya, >10,000 in Tanzania, >10,000 in Democratic Republic of Congo, Rwanda and Burundi and <5,000 in Malawi, but these are very rudimentary estimates. Based on this rather crude and very preliminary analysis, a population estimate of C (25,000-100,000) is proposed, with the approximate total (some 75,000) falling well within this range. This estimate also fits within the Fishpool & Evans (2001) estimate of C/D ('C+') for the all populations. A 1% level of 700 is suggested.

Population *crassirostris*, Lake Chad
There is a small resident population of Long-toed Lapwing in Western Africa, centred on Lake Chad, occurring in north-east Nigeria, Chad and north Cameroon. There is also a record from central Nigeria. This population may feasibly be connected to birds of Eastern Africa, but there appear to be enough records throughout the

year to suggest that it is resident, though there are at least local movements. Further, there is no evidence of long-distance regular movements within either the Eastern Africa or Southern Africa population. Scholte *et al.* (1999) report this species as uncommon in north Cameroon during the years 1994-1997, with records from between August and April, highest counts being of 40 in January 1996 and 15 couples in February 1995. The population is presumably rather small, and a population estimate of <5,000 is proposed, with a 1% level of 50.

Population *leucopterus*, Southern Africa: Western Angola
This apparently isolated population occurs along the Cunene River, whilst it is also recorded slightly further north from Lake Banda in Bengo; breeding is recorded from Quicama National Park (Dean 2000). A provisional population is proposed of A (<10,000), which could certainly be improved upon through survey work in its limited range.

Population *leucopterus*, Southern Africa: northern Malawi and Zambia south to western Angola, northern Botswana, Mozambique and north-east South Africa
The stronghold of this population is in Zambia, where it is a common bird of floodplain swamps and marshes, and to a lesser extent in dambos and other wetlands. There is a count of 1,395 from the Kafue Flats in January 2001 (Leonard 2001). South of the Zambezi, this species is common in wetlands of the Caprivi Strip and in the Okavango Delta, Botswana, and there are also reasonable numbers in the Zambezi Delta, Mozambique. Muller (2000) recorded 4 pairs along a 200m section of the upper Boteti River near Maun, Botswana in early 2000. This population is also a 'not uncommon local resident' in Angola, recorded in Cuando Cubango (south-east) and Moxico (east), with a separate population in the west (Dean 2000). Elsewhere in Southern Africa, it is rather uncommon, with a restricted distribution down along coastal wetlands of Mozambique to the extreme north-east tip of South Africa.

The population is thought to be smaller than that of Eastern Africa, with the major part found in Zambia. A population estimate of 25,000-50,000 is proposed yielding a mid-point 1% level of 380. This estimate is based on the approximate provisional figures below (with wider limits applied to the overall figure):

- 10,000-20,000 in Zambia:
- <5,000 in Western Angola:
- <5,000 in Botswana
- <10,000 in Namibia, Zimbabwe, Malawi, Mozambique & South Africa.

Tree (*in litt.* 2008) considers there to be 5,000-10,000 in Botswana, Zimbabwe and Mozambique (with <200 in Zimbabwe), whilst the population in central Mozambique probably does not exceed 300 birds (Parker 2005).

***Vanellus armatus,* Blacksmith Lapwing / Blacksmith Plover**

This monotypic plover is a regular feature of a wide variety of wetlands, both large and small, throughout Southern and Eastern Africa. It can also be found in urban areas, such as lawns and golf courses, and at temporary pools, and seems to be one of the more adaptable of the *Vanellus* plovers. 8,029 were recorded in the January 1998 AfWC, with highest counts from Botswana (Dodman *et al.* 1999). It is sedentary in some areas and partially migratory and nomadic in others. Most movements are in response to local conditions, such as flooding or the drying up of temporary pools. Tree (1998) describes three types of movements in south-central Africa, especially Zimbabwe, with breeders becoming nomadic after breeding, influxes of birds from arid areas to the south and west during drought years, and influxes of birds from further north during rains, some on passage. At Moremi Game Reserve in the Okavango Delta of Botswana there are local movements as pans driy out, with numbers in January counts being some 20-30 times higher than in July counts, though in south-east Botswana they are present at almost every wetland, with no evidence of notable seasonal differences (Tyler 2001). Count data from South Africa show peak numbers in the austral summer (middle of the dry season) in most regions (Taylor *et al.* 1999). Nomadic movements in Southern Africa probably occur over a broad front, as some birds have turned up as vagrants on islands south and east of Africa, including Europa (in the southern Mozambique Channel), Possession Island (in the Crozet Archipelago) and Prince Edward Island (Cooper & Underhill 2002).

It is increasing in Southern Africa, where it readily exploits artificial wetlands such as farm dams and irrigation schemes. In East Africa, it is most common in the Rift Valley, though it is largely absent from the Lake Victoria Basin (Zimmerman *et al.* 1996).

Fishpool & Evans (2001) use a population estimate of D (100,000-1,000,000) and a 1% level of 5,000 for the IBA Africa Programme. However, Parker (*in litt.*) suggests a much more conservative estimate of 50,000-

150,000. This seems rather low, given its wide range, adaptability and presence on almost any suitable wetland and it is suggested to follow Fishpool & Evans (2001).

***Vanellus spinosus,* Spur-winged Lapwing / Spur-winged Plover**

Population *spinosus*, Sub-Saharan Africa
The Spur-winged Lapwing has a scattered distribution in sub-Saharan Africa from southern Mauritania and Senegal to Ethiopia and Somalia, south to Kenya and northern Tanzania and Burundi, also being found in the Nile Valley. There is evidence of a probable range extension in Tanzania, with records from the 1990s in areas where it was previously unrecorded, including two breeding records from Nyumba ya Mungu, December 1991 and 30km north of Dar es Salaam, September 1992 (Baker 1994). Baker & Baker (draft: 2002) suggest there are now well over 1,000 in Tanzania. The most southerly records are from Zambia and Malawi, where this species was not recorded at all until recently.

In West Africa, this lapwing is generally common in the Sahel zone, occurring on a wide range of wetlands. Brouwer & Mullié (2001) give an average national estimate of 6,491 for Niger, based on AfWC counts from 1994 to 1997. Over 1,600 were recorded in a central area of Mali's Inner Niger Delta in June 1998, with much lower numbers earlier in the year (van der Kamp & Diallo, 1999). Here, this bird makes local movements according to flooding levels. 5,790 were recorded in the January 1998 AfWC from West Africa, including over 2,000 in The Gambia, whilst 1,596 were recorded in Waza-Logone, Cameroon, 1,755 from East Africa and 3 at the Dwangwa Sugar Estate in Malawi (Dodman *et al.* 1999). In East and West Africa, this plover was recorded in almost every participating country.

Fishpool & Evans (2001) give a population estimate of D (100,000-1,000,000) and a 1% level of 5,000. Given the wide distribution and regular occurrence at a range of wetland types, this estimate is broadly supported. However, it seems likely that this species is less numerous than *V. armatus*, so a lower range of 100,000-700,000 is proposed and a 1% level of 4,000. The population appears to be increasing, certainly in range.

Population *spinosus*, South-east Europe, Asia Minor
This population breeds in South-east Europe (Greece), South-west Asia, especially Turkey, and Egypt. There have been increases in the population, probably due to habitat expansion. The non-breeding range is not entirely clear, but it is presumed that a reasonable proportion move into Africa. Between 5,000 and 15,000 birds are thought to winter in Egypt (del Hoyo *et al.* 1996). Scott (1999) retains an earlier estimate of C (25,000-100,000). The population appears to be increasing.

***Vanellus tectus,* Black-headed Lapwing / Black-headed Plover**

Population *tectus*, Sahelian Africa, Mauritania to north-west Kenya and northern Somalia
This is a plover of the Sahel, found from Southern Mauritania and Senegal, across Sahelian West and Central Africa as far east as Ethiopia, northern Somalia and north-west Kenya. It is fairly widely distributed within this range, but quite local, and only found singly, in pairs or in small groups. It is not really a wetland bird as such, favouring dry scrub and bush with patches of grassland and bare ground. Thus, it is often not recorded in large numbers in the AfWC and is easily overlooked: 80 were seen in January 1998 in West Africa from four countries, whilst 131 were counted in Waza Logone National Park (Dodman *et al.* 1999). In East Africa, this population can be found in north Uganda, extending into Kenya as far east as the Kerio Valley and Baringo (Britton 1980).

Fishpool & Evans (2001) give a population estimate of D for this species (both populations). The higher range of D (1,000,000) seems far too high, considering this bird's generally rather thin density. Brouwer & Mullié (2001) consider this species rare in Niger and suggest an estimate of C for Africa. Whilst this could be of the right order, there is a chance that the population is over 100,000 (the upper limit of C), as the species is not so much rare but largely overlooked, easily missed in the dry bush and scrub of the Sahel. A 'compromise' population estimate is proposed of 25,000-200,000, with a provisional 1% level of 1,000.

Population *latifrons*, Eastern Kenya to southern Somalia
This population occurs in north-east Kenya south to Meru, Tsavo West National Park and Malindi (Britton 1980), thence found in southern Somalia in dry bush. As this plover is not congregatory and generally occurs at fairly low densities, a provisional estimate is proposed of A/B, with a 1% level of 100.

***Vanellus melanocephalus,* Spot-breasted Lapwing / Spot-breasted Plover**

This species is restricted to the northern and central highlands of Ethiopia, where it is found in marshy grasslands and moorlands, mostly above 3,000m (Hayman *et al.* 1986). It is found in seven IBAs of the Afrotropical Highlands biome, including the Guassa area of Menz, where 136 were recorded recently (with predictions of greater numbers present), Sululta and Gudo plains, where 120 and 210 have been recorded respectively and the Bale Mountains National Park, where 50+ pairs breed (Ethiopian Wildlife & Natural History Society 2001). Fishpool & Evans (2001) use a population estimate of A and a 1% level of 50 for the IBA Africa Programme, on advice of the Ethiopian Wildlife & Natural History Society. This estimate is adopted here.

***Vanellus albiceps,* White-headed Lapwing / White-crowned Plover**

Fishpool & Evans (2001) give a species population estimate of B/C and use a 1% level of 250 for the IBA-Africa Programme.

Population *albiceps*, West & Central Africa
With a distribution from Senegambia across to south-west Sudan and northern Angola, this is a widespread resident and intra-African migrant of West and Central Africa. Up to 90 have been recorded in The Gambia, where this is a rare but regular wet season visitor to riverbanks and marshes (Barlow *et al.* 1997). It is not generally found north of the Niger River, and it is not a common bird of the Inner Niger Delta; a group of 17 were found here in August 1998 (van der Kamp & Diallo 1999). There were only 4 records in Northern Cameroon between 1992 and 1994 (Scholte *et al.* 1999), but 95 were recorded in southern Cameroon in January 1998, with a few also from one site in The Congo (Dodman *et al.* 1999). Van der Waarde (2007) estimated 85-130 birds to occur in the Cameronian coastal zone. In general, there are few records during the AfWC, but this reflects more the poor coverage of Central Africa and the West Africa forest block across to southern Nigeria.

Whilst there is rather limited data concerning this population, there is surely extensive habitat available to this generally riverine plover, especially in Central Africa. Limited counts from southern Cameroon and The Congo point to a fairly sizeable population, spread along various tributaries of the Congo and other rivers throughout. Parker (*in litt.* 2002) provides an estimate of 10,000-20,000, which is thought to be too low. A new provisional population estimate is recommended of 30,000-70,000, with a mid-point 1% level of 500.

UPDATE: 50,000-100,000:
In WPE5: Bos et al. 2006. Samples of rice fields in Senegal, Gambia, Guinea, Guinea Bissau & Sierra Leone resulted in an estimate of 44,000 for these areas alone.

ADD TO REFS:
Bos, D., Grigorias, I, and Ndiaye, A, 2006. Land cover and avian biodiversityin rice fields and mangroves of West Africa. A and W Report 824. Altenburg and Wymega , ecological research, Veenwouden, Wetlands International, Dakar.

Population *albiceps*, Tanzania
This sedentary population of southeast Tanzania has a population of around 6,000-8,000 birds (Baker 1997), occurring on sandbanks along the Rufiji, Ruaha, Luwego and Kilombero Rivers, retreating to higher ground nearby during peak floods (Britton 1980). 1,126 were counted during the 1995 AfWC in Tanzania (Dodman & Taylor 1995). A 1% level of 70 is used.

Population *albiceps*, Central & eastern Southern Africa
In Southern Africa, this population extends to NE South Africa, including the Kruger National Park. It extends north through Mozambique, and into Zimbabwe and Zambia, being a common bird of the Zambezi River and some of its tributaries, such as the Luangwa in Zambia. It extends west to the Caprivi Strip and south-east Angola. There are some 90 breeding pairs in Kruger (Tarboton & Nel 1980), whilst Parker (1999 & 2005) estimates 100 birds for southern Mozambique and 500 for central Mozambique, where it has probably declined due to disturbance along rivers. Other important sites include Mana Pools, Zimbabwe and the Lower Zambezi National Park, Zambia. It is considered Near Threatened in South Africa (Barnes 1998). In all areas it is largely sedentary (Underhill *et al.* 1999). Parker (in press 2002) considers there to be 10,000 in 'South-east Africa', this figure including Tanzania. This seems to be a very low estimate, especially given that there are some 7,000 birds in Tanzania (see above). There are likely to be about 20,000 north of and along the Zambezi, with Zambia supporting the bulk of the population, this being a ubiquitous and typical plover of many stretches of rivers of the Zambezi Basin. Dodman (2002) proposed a population estimate of 20,000-50,000, giving a rather broad range to allow for lack of information from some areas. The number south of the Zambezi is probably around 1,000 birds. Tree (*in litt*. 2008) considers a range of 10,000-20,000 to be more

realistic, given that the majority of birds are confined to the Zambezi. This estimate is adopted here with a 1% threshold of 200. The population seems to be declining in South Africa and Mozambique, but overall it is considered to be stable.

***Vanellus senegallus,* African Wattled Lapwing / (Senegal) Wattled Plover**

Fishpool & Evans (2001) have given an estimate of C (25,000-100,000) for the total population of the species, expecting it to be towards the upper end of this range, thus using a 1% level of 750 for the IBA Africa Programme.

Population *senegallus*, Senegal to Sudan, north-east Democratic Republic of Congo & north Uganda
In West Africa, this plover is widespread, but tends to avoid arid areas. It is a common to locally abundant breeding resident throughout The Gambia, where it generally breeds before or early in the rains (Barlow *et al.* 1997). It is common in north Cameroon, where it is probably resident (Scholte *et al.* 1999). However, it is rather rare in the Inner Niger Delta, Mali, where van der Kamp & Diallo (1999) report only of singles or couples south of the central area surveyed. Brouwer & Mullié (2001) report it to be thinly spread in Niger, also offering a potential population estimate for the species of C, possibly D. 375 were recorded in the January 1998 AfWC, including 348 in The Gambia, whilst 216 were also counted at Waza Logone, Cameroon (Dodman *et al.* 1999). There are some migratory movements within West Africa, birds probably moving north during the wet season. Parker has estimated the population of *senegallus* at 20,000-100,000 individuals. Scott (2002) recommends a population estimate of C (25,000-100,000). Given the rather low counts and general absence of this species from the Congo Basin, the upper limit of this estimate could be rather high. A new estimate of 25,000-60,000 is proposed, with a 1% level of 425.

Population *lateralis (solitaneus)*, Southern Democratic Republic of Congo to northern Namibia
This population, which is sometimes ascribed to the form *solitaneus* (Ward & Tree 1997), ranges from southern Democratic Republic of Congo and Angola to northern Namibia, east to the Caprivi Strip. V. Parker (*in litt.* 2002) gives an estimate for *'solitaneus'* and *lateralis* combined of 50,000-100,000 individuals. Scott (2002) recommends a population estimate of C (25,000-100,000). However, due to rather unknown quantity of this population, the slightly broader range of B/C is suggested.

Population *lateralis*, Eastern Democratic Republic of Congo & south Uganda to South Africa (Natal)
In East Africa this population is widespread but local up to 2,200m on damp short grass by lakes, swamps and streams in Uganda (south of Masindi to Elgon), west Kenya and west Tanzania (Britton 1980). There are seasonal movements within the sub-region. 223 were recorded in Uganda during the January 1998 AfWC (Dodman *et al.* 1999), whilst 279 were recorded in Tanzania in January 1995 (Dodman & Taylor 1995). There was an average of 300-500 breeding pairs at South Africa's Grassland Biosphere Reserve [CHECK ORIGINAL REF. PROBABLY BARNES IBA BOOK].

In Southern Africa, the species appears to be a partial altitudinal migrant (Underhill *et al.* 1999). There have been no major changes in its distribution in Southern Africa during the 20th century, and in some areas, it has adapted well to man-modified habitats (Ward & Tree 1997). In Botswana, it is mainly found on the Limpopo River and in northern wetlands (Tyler 2001), but does not appear to be numerous here. However, this is a common wetland bird in Zambia and Zimbabwe. 476 were recorded in the sub-region in July 1997 and 337 in January 1998 (Dodman *et al.* 1998).

Scott (2002) recommends a population estimate of C (25,000-100,000), which is adopted here. This may need revision upwards in future, if increased monitoring of grasslands points to higher numbers than this.

Population *major*, Ethiopia & Eritrea
V. s. major is virtually confined to Ethiopia and Eritrea, occurring mainly in west and central Ethiopia. There are likely to be some local movements, as it is generally only present around Ethiopia from July to October (Parker, *in litt.* 2002). 43 were counted in the January 1998 AfWC (Dodman *et al.* 1999). Parker (*in litt.* 2002) suggests a population estimate of 5,000-15,000, which is adopted here.

***Vanellus lugubris,* Lesser Black-winged Lapwing / Senegal Plover**

Population *lugubris*, West Africa
This lapwing is rather patchily distributed in West Africa, with the main population probably found between Guinea / Sierra Leone and southwest Nigeria. It is also found in Senegal, where it has bred in the Sine Saloum area, and recently appears to be regular in very small numbers in The Gambia (Barlow *et al.* 1997). It is found in southern Mali and Côte d'Ivoire, but records from the Sahel zone appear to be of vagrants. It favours coastal savannahs and grassland within fairly open woodland or bush / scrub, and tends to be found

in small groups. It does not tend to be recorded in the AfWC in West Africa, as it is not really associated with wetlands. It is an intra-African migrant, but it is thought that there is no regular interchange between this small West Africa population and birds of Central, Eastern and Southern Africa. V. Parker (*in litt.* 2002) has proposed a population estimate of 5,000-20,000, which is adopted here, with a 1% level of 125.

Population *lugubris*, Equatorial Africa, East & South-east Africa
This population is distributed from Gabon to the East African coast, always south of the Sahel zone, and south as far as KwaZulu Natal, South Africa. In East Africa, the bulk of records are from the coastal lowlands, western Uganda, western Tanzania and the Lake Victoria Basin (Britton 1980). Parker (1999) estimates there to be 2,000 in southern Mozambique, whilst there may be some 300-350 along the coast of Gabon (Schepers & Marteijn 1993). 31 were recorded in Zimbabwe in the January 1998 AfWC and 14 in July 1997 (Dodman *et al.* 1999). It is an intra-African migrant, probably at least partly nomadic. Although some of its movements appear to be regular, they are not well understood. It is declining in Southern Africa (Ward 1997), probably throughout its range (V. Parker, *in litt.* 2002). Fishpool & Evans (2001) give a population estimate of C/D for the two populations combined and use a 1% level of 1,000 for the Africa IBA Programme. This seems rather high, given the species' rather patchy distribution, so a more conservative estimate of 20,000-50,000 (V. Parker, *in litt.* 2002) is adopted here, with a 1% level of 350.

***Vanellus melanopterus,* Greater Black-winged Lapwing / Black-winged Plover**

Population *melanopterus*, Ethiopian highlands
V. m. melanopterus is mainly sedentary, centred on the upland grasslands of Ethiopia. 457 were recorded in the January 2000 AfWC count in Ethiopia (Dodman & Diagana 2003). Fishpool & Evans (2001) give a population estimate of C/D for this species and use a 1% level of 1,000 for the IBA Africa Programme. No sites in Ethiopia appear to have met this criterion, and it is suspected that this estimate is rather high. V. Parker (*in litt.* 2002) proposed an estimate of 20,000-100,000 for this population. Even this seems rather high, and an even lower, but very provisional, estimate is proposed of 10,000-50,000, with a mid-point 1% level of 300.

[CHECK ASH & ATKINS]

Population *minor*, South-west Kenya to central north Tanzania
Some authors consider this population to belong to *melanopterus*. It breeds in the highlands of Kenya and northern Tanzania and undertakes short altitudinal migrations (Scott 1999). It is a common breeder on the Ardai and Athi plains at 1,300-1,500m, whilst flocks of thousands have been recorded at Mau Narok, Kenya (Britton 1980). Over 1,000 were recorded in the Serengeti National Park in 1998. There are usually only few records during the AfWC, but this is not really a wetland bird, associated more with grasslands. V. Parker (*in litt.* 2002) estimated the population as 1,000-5,000. Given the presence of fairly regular non-breeding flocks at a few different sites, this estimate seems rather low. A population estimate of A is proposed instead, with a 1% level of 50.

[UPDATE: 261 recorded in Tanzania in January 2005.]

Population *minor*, South Africa, Swaziland, Mozambique
This population breeds in the highlands of South Africa and Swaziland and is a non-breeding visitor to the coastal plains from southern Mozambique to the East Cape, South Africa. It also breeds at some coastal sites. It is nowhere abundant, and is thought to be decreasing as a result of the loss of habitat through changes in grazing and burning practices (Harrison *et al.* 1997). Parker (1994) estimated there to be 200 breeding pairs in Swaziland, whilst counts from IBAs total some 1,500-3,500 birds, including some 500-1,000 birds at the Grassland Biosphere Reserve (Barnes 1998). More recently, Underhill *et al.* (1999) have estimated the total population at only 2,000-3,000 individuals, which is adopted here. A mid-point 1% level of 25 is thus applied.

[NB ERRONEOUS RECORD IN IWC FROM BURKINA 2002; ALSO 3 IN NAMIBIA 2014 SHOULD BE CHECKED.]

***Vanellus coronatus,* Crowned Lapwing / Crowned Plover**

Fishpool & Evans (2001) give an estimate of D (100,000-1,000,000) for all populations combined.

Population *coronatus*, East to Southern Africa
This population occurs from south-east Sudan and Ethiopia to eastern Angola, Botswana, Zimbabwe, eastern South Africa and Mozambique. It is common to abundant in central East Africa, but is largely absent from the Lake Victoria Basin and coastal plains (Britton 1980). This reflects its preference for fairly arid areas with short, often

dry, grassland. It is not common in Uganda. Baker (*in litt.* 2005) suggests that there may be some 200,000-250,000 in Tanzania alone, based largely on data from the Tanzania Bird Atlas (Baker & Baker, 2005). Records tend to be quite low in the AfWC, this not really being a common bird of wetlands, though it is found on some dry floodplains. It has expanded its range in Southern Africa as a result of human activities (e.g. the clearing of vast areas of bush and woodland), but improved grazing practices with lower stocking rates and hence longer grass may have had a negative impact on abundance in some areas (Harrison *et al.* 1997). It is a common and widespread bird in Zambia, where there are extensive floodplains and grasslands.

V. Parker (*in litt.* 2002) suggested that overall this population is probably increasing and estimates there to be 10,000-40,000 in East Africa and 200,000-400,000 in Southern Africa (including *xerophilus*). The estimates of V. Parker (*in litt.* 2002) would appear to be far too low for East Africa, where there may be up to 500,000. A new population estimate of 400,000-900,000 is thus suggested for this population, with a mid-point 1% level of 6,500.

Population *coronatus*, East Central Africa
This population occurs in south-west Uganda, eastern Democratic Republic of Congo, Rwanda and Burundi and into north-west Tanzania. It avoids the forest block to the west and is in part geographically separated from birds in East Africa. It is found on short grasslands in the more arid areas of these tropical countries, where such habitat is fairly limited. A provisional population estimate of A/B is proposed and a 1% level of 250.

Population *xerophilus*, SW Africa
Not all authors accept this as a separate race, but this is treated here as a discrete population, following Scott (2002). The population extends from south-west Angola and Namibia to Botswana, the western Transvaal of South Africa and extreme western Zimbabwe. It is generally common throughout its range in appropriate habitat. Dodman (2002) provided a provisional population estimate of B/C, but Tree (*in litt.* 2008) presents a much more discrete range than other authors (e.g. Hockey *et al.* 2005), considering that all birds east of Ngamiland in Botswana are *coronatus*. On this basis he provides an estimate of 30,000-50,000, which is adopted here with a 1% level of 400.

Population *demissus*, Somalia
V. c. demissus is common in Somalia (Ash & Miskell 1983), where it is sedentary. V. Parker (*in litt.*) makes a provisional estimate of 10,000-40,000, which may be of the right order. However, there is extensive habitat for this species in Somalia, and it may well be more numerous than this. It does not seem possible to gauge an estimate with any degree of accuracy, so a much less certain range is proposed of B/C (10,000-100,000), with a 1% level of 1,000.

***Vanellus superciliosus,* Brown-chested Lapwing / Brown-chested (Wattled) Plover**

The Brown-chested Lapwing is a monotypic species of eastern West and Central Africa. It has only been proven to breed in southern Nigeria, although it probably breeds in a narrow band from Togo to north-east Democratic Republic of Congo (Scott 2002). It breeds in dry grassy savannas, and may gather in post-breeding flocks of up to 50 birds (Hayman *et al.* 1986). It is a trans-equatorial migrant, occurring in the breeding range only during the dry season (late November to early June). It is a non-breeding visitor mainly to southern and east Democratic Republic of Congo, Rwanda, Burundi and Uganda. Parties of up to 30 have been recorded in short grassland, newly burnt ground and lakeshores in the West Rift in Uganda, with scattered, occasional records also from Tanzania and western Kenya (Britton 1980). Other local concentrations have been recorded in its non-breeding range (Urban *et al.* 1986), but overall the movements and status of this plover are not at all well known. Fishpool & Evans (2001) give a population estimate of A/B (<25,000 individuals), which is adopted here, with a provisional 1% threshold of 250.

***[Vanellus gregarius,* Sociable Lapwing / Sociable Plover**

Population *gregarius*, Noth-east Africa (non-breeding)
The Sociable Lapwing is a Vulnerable migratory species, with breeding confined now to the steppes between the Volga and Ural Rivers in Russia and western Kazakhstan (Serebryakov 1997). The species has suffered a dramatic decline, due it seems to a combination of increasing aridity and conversion of steppes to arable land. After breeding, one part of the population migrates to Pakistan and India (Perennou *et al.* 1994). The remainder migrate to northeast Africa, some probably staying in the Arabian peninsula. The entire world population has recently been estimated at 200-600 breeding pairs, with the size of the northeast Africa non-breeding population accounting for 400-1,200 birds (Stroud *et al.*, in prep.). Not surprisingly with a population this small, there are only limited records from the non-breeding range in Eritrea and Sudan. In Eritrea, *V. gregarius* is found on the plateau and at lower altitudes on the Western Plain and in coastal saltmarsh, though there are no recent records (Coulthard 2001). Stroud *et al.* (in prep.) assign a 1% level of 4, given the steep

decline of this population (and species). Hopefully the new draft international action plan for the species will result in some conservation success to ensure the survival of this highly endangered plover.]

[update text]

***[Vanellus leucurus,* White-tailed Lapwing / White-tailed Plover**

Population *leucurus*, South-west Asia, North-east Africa (non-breeding)
There are two populations of this species, which breeds from Iraq into Central Asia. The White-tailed Lapwing reaches North-east Africa as a non-breeding visitor, mainly in northern Sudan. It is regular there along the Red Sea coast, and along the major rivers south to the Blue and White Niles, with even a record from as far south as the Bahr-al Ghazal (Van Gasse, *in litt.*). 50 were recorded at Lake Abiad in Sudan in 1983 (Robertson 2001), but there is essentially very little data from this large country. Summers *et al.* (1987) gives an estimate of 600-1,100 non-breeders in Sudan. There are occasional records from other countries in Africa, including Ethiopia and Nigeria (Lake Chad). In 2002, Tiwari (*in litt.*) recorded this species at the Seawater Farms at Massawa, Eritrea.

The Central Asian breeding population migrates in the northern winter to Sudan, the Middle East or the northern Indian Subcontinent, remaining from September to March, whilst the Mesopotamian population is largely sedentary, though the northernmost birds move southwards in the northern winter (Hagemeijer & Blair 1997). It is feasible that some birds of the Mesopotamian population also reach the Horn of Africa.

Stroud *et al.* (2004) retain an earlier estimate of B (10,000-25,000) for this population and a 1% level of 250, also indicating that the population is probably in decline.

***Scolopax rusticola,* Eurasian Woodcock**

Population *rusticola*, Europe (breeding)
The non-breeding range of this woodland bird includes North Africa. Stroud *et al.* (in prep.) have estimated the population to be between 21,000,000 and 25,000,000 birds, with the bulk of the breeding population found in Russia.

***Gallinago stenura,* Pintail Snipe**

Population *stenura*, S Asia, E Africa (non-breeding)
The pintail snipe breeds mainly in northern Russia. Two populations have been defined, each with different non-breeding ranges. This population reaches East Africa, with scattered records from Somalia, Kenya and Seychelles, but the main non-breeding range is likely to be in Southwest Asia, including the Arabian Peninsula. Perennou *et al.* (1994) estimated the population at C/D.

***Gallinago media,* Great Snipe**

Population *media*, Scandinavia (breeding)
The main non-breeding range of this population is thought to be West Africa, though this has not been firmly established. Stroud *et al.* (in prep.) estimate the population to be stable at 18,000-51,000 birds, based on breeding data from Sweden and Norway. In West Africa, great snipe is a fairly widespread non-breeding visitor, but generally rare. It is locally common in the Inner Niger of Delta, where it can be seen in floodplain grasslands, including islands in this extensive wetland system. Only 8 were counted in the area of Lac Débo and Lac Walado Débo in the delta in April 1999 (van der Kamp & Diallo 1999). Another important site for this species is the Hadejia-Nguru wetlands of northern Nigeria, where only 2 were counted in January 1998, when one was also found in The Gambia (Dodman *et al.* 1999). Scholte *et al.* (1999) report it to be an uncommon visitor to Logone floodplains in northern Cameroon between October and February.

Population *media*, W Siberia, NE Europe (breeding)
There have been major declines in this population, which breeds in Western Siberia and Northeast Europe. All birds are thought to migrate to sub-Saharan Africa after breeding, and large numbers have been recorded especially in Ethiopia. Great snipe was previously (before 1980) regular in substantial numbers on passage in several areas of East Africa, including Mbarara in Southwest Uganda (Britton 1980). In Kenya, the main passage is in the west; important sites include Busia Grasslands near the Uganda border and the Mau Narok-Molo Grasslands (Bennun & Njoroge 1999).

The main non-breeding area of this Near Threatened species is Central/Southern Africa, including southern Democratic Republic of Congo, Angola, Zambia, Malawi and southwest Tanzania. It is recorded quite regularly in small numbers in the AfWC in Zambia, e.g. 24 in January 1998 (Dodman *et al.* 1999), but it is not an easy bird to see in the flooded grasslands and marshes that it favours. However, these habitats are quite extensive in Zambia during the rainy season.

Stroud *et al.* (in prep.) give a population estimate of 141,000-365,000 based on breeding data, though Scott (2002) have increased this to the broader range of D, to take account of the unknown but possibly very large number of birds breeding in Western Siberia.

There are two studies from Africa that present a rather conflicting impression of the size of this population based on breeding data. Massoli-Novelli (1988) estimated that approximately 10 million *G. media* passed through the Ethiopian Highlands on autumn migration. Further south, large numbers have also been estimated in the 1990s for Lake Chilwa, Malawi. Both estimates were based on extrapolations, raising some question as to their reliability, particularly in the case of Ethiopia, where the single study area was small.

At Lake Chilwa and some other wetlands in Central and Southern Africa there is high hunting pressure. The population has been declining since the 19th Century, and a long-term decline since then, more recent declines attributed to the loss and deterioration of floodplain meadows and marshland in the breeding range (Morozov 1994). It would be useful to focus some greater attention on the monitoring of this species in Africa, and to determine any ongoing threats that might be contributing to its continued decline.

***Gallinago gallinago,* Common Snipe**

Population *gallinago*, Europe (breeding)
The non-breeding range of this population includes West Africa, where it is a widespread passage migrant and visitor throughout the sub-region. However, it is not usually recorded in high numbers at all in the AfWC, e.g. 71 recorded in January 1998 from 9 countries between Senegal and Cameroon. Van der Kamp & Diallo (1999) suggest that the population has decreased markedly, as it is only found 'by chance' in the Inner Niger Delta of Mali, whereas Lamarche (1980) recorded 'thousands' here in the 1970s. Brouwer & Mullié (2001) give an average national population estimate for Niger of 748 based on AfWC data from 1994-1997, finding it in generally low numbers. Scholte *et al.* (1999) report it to be a frequent visitor to Logone floodplains and the Kalamaloué National park in northern Cameroon between October and February. Stroud *et al.* (in prep.) give a population estimate of 2,400,000-3,900,000.

Population *gallinago*, West Siberia (breeding)
The non-breeding range of this population is in Southwest Asia and sub-Saharan Africa. In Africa, it does not reach Southern Africa, but is found in Sahelian wetlands, probably from Sudan through Eastern Africa and south to Zambia and Malawi, where it is considered rare. There are limited records during the AfWC in East Africa, e.g. 284 in January 1998 from three countries (Dodman *et al.* 1999), though presumably the Sudd swamps of Southern Sudan could harbour a significant number. It is regular in reasonable numbers south to the southern Rift Valley lakes in Kenya and the Lake Victoria Basin (Britton 1980). Stroud *et al.* (in prep.) give an approximate population estimate of >1,500,000.]

***[Gallinago nigripennis,* African Snipe**

Three races are recognised. Fishpool & Evans (2001) estimate a population in range C (25,000-100,000) and use a 1% level of 500 for the IBA Africa Programme.

Population *nigripennis*, S Mozambique & South Africa
The African snipe is a fairly common resident in eastern South Africa, also found in southern Mozambique. It inhabits marshes, flooded grasslands and wetland margins. There are local and possibly nomadic movements. 85 were recorded during the January 1998 AfWC in South Africa (Dodman *et al.* 1999), but it is easy to overlook this species. Using the estimate of Fishpool & Evans (2001) as a guide, a provisional estimate of B is given, and a 1% level of 150. This species is declining in the Southwest Cape of South Africa (Harrison *et al.* 1997), but the overall trend of the population is not known.

Population *aequatoralis*, Ethiopia south to E Democratic Republic of Congo & N Mozambique
In East Africa, African snipe occurs mainly in the highlands from 1,700-3,000m up to 4,000m in mountain bogs, but there are records from lower altitudes, and it may well be an altitudinal migrant to lower areas (Britton 1980). It is fairly local in the upland areas of Ethiopia, Kenya, Uganda and Tanzania, reaching as far

as eastern RDC and northern Mozambique. Using the estimate of Fishpool & Evans (2001) as a guide, a provisional estimate of B/C is given, and a 1% level of 250.

Population *angolensis*, Angola, Namibia, Botswana, Zambia, W Zimbabwe
This is a fairly common bird of suitable wetlands in Zambia, though not recorded very often in the AfWC. There are only scattered records from the wetlands of northern Botswana, including the Okavango, where again under-recording is suspected (Tyler 2001). In Namibia, it is largely restricted to the Northeast of the country. It is widespread in Zimbabwe, but there are only limited records. Using Fishpool & Evans (2001) as a guide, a provisional estimate of B/C is given, and a 1% level of 250.

***Gallinago macrodactyla,* Madagascar Snipe**

Madagascar snipe is a Near Threatened species, endemic to wetlands of Eastern Madagascar. It is fairly common in marshes and swamps with grass and sedges, also ricefields, and in forested areas occurs in small bogs and on the banks of streams (Hayman *et al.* 1986). It is largely sedentary and local, and is not known from lowland wetlands of Western Madagascar. 23 were recorded in the July 1997 AfWC in Madagascar and 26 in January 1998 (Dodman *et al.* 1999). Seven were recorded at Torotorofotsy wetland in Central East Madagascar in June 2002, though none were found during the same month at Itasy Lake, where they have been recorded in the past (Rabarisoa 2002). This is one of seven endemic species of the East Malagasy wetlands Endemic Bird Area, where it occurs in at least 9 IBAs, also found in a further 3 IBAs outside the EBA within the East Malagasy biome (Project ZICOMA 2001). It seems particularly common in the Didy and Ivondro wetlands (Project ZICOMA 2001). It probably occurs at around 500-1,000 small wetlands with 1-2 pairs on each, and at 20-50 larger wetlands with 5-10 pairs on each, yielding a total estimate of 1,800-7,500 individuals (F. Hawkins, *in litt.*). A 1% level of 50 is proposed. Without a doubt wetlands have been lost and modified in Eastern Madagascar, so this species has surely declined in the past. However, though it may still be in decline, the current population trend is not well established. It is probably not common in artificial wetlands such as ricefields, preferring secluded marshes within the forest zone.

***Lymnocryptes minimus,* Jack Snipe**

Population *minimus*, NE Europe (breeding)
The non-breeding range of this population includes West Africa from Mauritania and Senegal east as far as Lake Chad. It is generally only found in the Sahel zone, with scattered records further south. It is not normally recorded at all in the AfWC. Scholte *et al.* (1999) report of single birds in Logone floodplains, north Cameroon in November 1994 and October 1995. Judging by the paucity of records, it is likely that a good part of the population does not reach Africa in the non-breeding season. Kalchreuter (2002) estimated that the total autumn population of birds passing through Western Europe was in the region of 2,500,000-3,000,000 birds, whereas Stroud *et al.* (in prep.) give a population estimate of 49,000-73,000 based on breeding data. In reviewing these conflicting reports, Scott (2002) give a much broader estimate of D/E.

Population *minimus*, W Siberia (breeding)
The movements or status of this population are not well known. Its main non-breeding range is probably southwest Asia, but Jack snipe (presumably this population) also reaches Northeast Africa. It is a scare migrant between October and March in East Africa, with records in Uganda, Kenya and occasionally as far south as Tanzania. There also records of vagrants in other countries. No population estimate is given. The wetlands of southern Sudan and in the Nile Basin may well be an important non-breeding area for this population.

***Limosa limosa,* Black-tailed Godwit**

Population *limosa*, W Europe (breeding)
The main non-breeding range of this population is in West Africa, where it is a regular visitor mainly to freshwater wetlands, such as the Inner Niger Delta and the lower Senegal Valley, where it is also found in ricefields. Some birds move down the coast, as this population is also found in Morocco and coastal Mauritania, but others will cross the Sahara to reach Mali. Kirby & Scott (*in litt.*) consider that birds breeding west of about 20°E spend the northern winter in wetlands from Senegal to Mali, whilst those breeding east of 20°E are found further east in Africa (see below). However, the real 'division' of populations in Africa is not at all clear, and this species can be found continuously in appropriate wetlands from Senegal to Chad. This makes it rather difficult to base the population estimate on the numbers of non-breeding birds in Africa.

Stroud *et al.* (in prep.) give a population estimate of 148,000-183,000 based on breeding data. However, they only manage to account for 131,500 based on January counts from the 1990s. Some of the figures used for

Africa are too low here. In January 1998, 35,026 were counted in Mali (Dodman *et al.* 1999), against a figure used of <20,000. Nearly 27,000 were present in one central area of the delta at Lac Débo and Lac Walado Débo in February 1999 (van der Kamp & Diallo 1999). Further, no figure is given for Guinea-Bissau, where Altenburg & van der Kamp (1985) estimated a total exceeding 100,000 in late 1983.

Although there are some major concentrations of this bird in some extensive Sahelian wetlands, it can also be found widely scattered in small wetlands, flooded fields, irrigation schemes and ricefields, and January counts in Africa are likely to always account for only a proportion of the population. The estimate of Stroud *et al.* (in prep.) based on breeding data is thus adopted, also their trend of declining. Declines are probably attributable to changes in land use in Europe. Although some birds may be caught in Africa, this species is not prone to any significant threats in its non-breeding quarters.

Population *limosa*, E Europe (breeding)
The main non-breeding range of this population is presumed to be in Africa, from east Mali to Chad and the upper Nile. However, this does not seem to be well established. Stroud *et al.* (in prep.) give an estimate of 93,000-173,000 based on breeding data. Although such numbers are never reached during January counts in the Mediterranean and sub-Saharan Africa, there are also significant gaps in coverage here. Brouwer & Mullié (2001) give an average national population estimate of 5,735 for Niger, where this species is found along the river and at isolated rivers. 6,473 were counted at the Hadejia-Nguru wetlands in northern Nigeria in January 1997 (Dodman *et al.* 1997). 3,000 were recorded at wetlands in Chad in January 2000 (Dodman *et al.*, in prep.). However, this bird is not often recorded in the AfWC in northern Cameroon, though Scholte *et al.* (1999) report it to be common in this area. It is not known whether birds from this population reach the Sudd swamps of southern Sudan or not.

Population *limosa*, SW Asia & NE & E Africa, S to Zambia (non-breeding)
This population migrates from breeding areas in Siberia through Central Asia to Southwest Asia and across the Arabian Peninsula to East Africa. In Africa, the Sudd swamps of southern Sudan are presumably of importance, although data are lacking. In East Africa, it is a visitor to wetland habitats in Kenya and northern Tanzania usually from August to April (Britton 1980), with flocks of hundreds recorded from Lakes Turkana and Naivasha (Zimmerman *et al.* 1996). 1,310 were recorded in Ethiopia in January 1998 and only 6 from Uganda, despite excellent coverage here in 1998 (Dodman *et al.* 1999). However, 2,792 were recorded once at Uganda's Doho Rice Scheme. January counts from Kenya and Tanzania are generally rather low.

The non-breeding range in Africa is extensive and apparently increasing, with birds regularly found much further south than previously. Most authors consider this population to only occur south of East Africa during years of drought, but this is not the case. During the 1990s, this has become a regular visitor to Zambia, though it was not always present during the January counts. The highest count to date is probably of 3,465 recorded at Lochinvar National Park in the Kafue Flats in January 2001.

Overall, there is no clear picture of the size of the non-breeding population in Africa, due to some major gaps in coverage, but the non-breeding range has certainly been extended in recent years. This could be due to wetland modifications further north, perhaps in Southwest Asia. Stroud *et al.* (in prep) retain the population estimate of C (25,000-100,000) given by Perennou *et al.* (1994).

Population *islandica*, Iceland, Faroes, Shetland, Lofoten Is
Small numbers of this population reach Morocco. The population is around 35,000 (Stroud *et al.*, in prep.).

***Limosa lapponica,* Bar-tailed Godwit**

Population *lapponica*, Coastal Western Europe (non-breeding)
This population probably just reaches north Morocco, but its main non-breeding sites are in Britain and areas around the Wadden Sea. Its breeding area is in north Scandinavia and Northwest Russia. Stroud *et al.* (in prep.) give a population estimate of120,000.

Population *taymyrensis*, Atlantic seaboard of Africa (non-breeding)
The large majority of bar-tailed godwits in Africa belong to this population, which has breeding grounds in West Siberia and the Taimyr. It has a widespread, mainly coastal non-breeding distribution from Morocco to the west coast of South Africa, with key sites including Mauritania's Banc d'Arguin, Senegal's Saloum Delta and the Bijagós Archipelago of Guinea-Bissau. *L. lapponica* has become a regular non-breeding visitor to the west coast in Southern Africa, where once it was extremely rare (Harrison *et al.* 1997), with numbers building up to an estimated 2,600 by the mid-1980s (Summers *et al.* 1987). A few birds are found at inland wetlands, for instance in the Lake Chad Basin, but numbers here are very low and probably irregular.

Stroud *et al.* (in prep.) estimate the population at 520,000, based data during the non-breeding season. This includes estimates of 348,994 for Mauritania, 3,811 for Senegal, 108,700 for Guinea-Bissau and 35,000 for Guinea. Frikke *et al.* (2002) estimated 97,000 for the Bijagós Archipelago in January 2001, slightly lower than the estimate of 1992/93, which is used by Stroud *et al.* (in prep.). C. Smit (*in litt.*) reports of 372,582 for the Banc d'Arguin in January 2001, rather more than the figure used by Stroud *et al.* (in prep.). Overall, the total estimate seems acceptable, based on some fairly reliable estimates. There are potentially a few missed sites of importance along the East Atlantic Flyway, but probably the most important sites are accounted for.

However, a slight revision is proposed, to account for simultaneous data from the Banc d'Arguin and Bijagós in 2001, from where there was a combined total of 469,582, an increase of 11,888 on the combined national figures of Stroud *et al.* (in prep.). Further, the figure used for Mauritania by Stroud *et al.* (in prep.) includes some 6,700 birds counted along the shoreline outside the park, so this should be added to this difference, resulting in an increase of >18,500, rounded up to 20,000. A new population estimate is thus proposed of 540,000 with a 1% threshold of 5,400 for the Atlantic seaboard of Africa.

Population *menzbieri*, Coastal NE & E Africa, SW & S Asia (non-breeding)
The breeding range of this population is a fairly discrete area of the eastern Taimyr, but the breeding range is very extensive along coastlines of the Indian Ocean, Arabian and Red Sea and Gulfs of Arabia and Persia. In Africa, it is largely unrecorded over much of its range of rather remote coastlines. There are records also from inland sites, for instance in the Rift Valley. The Bazarutos Archipelago of Mozambique is one key site. 5,523 were recorded here in January 1998 (Dodman *et al.* 1999). It is also a regular migrant to Indian Ocean islands, and is found throughout Seychelles mainly between October and March (Skerrett *et al.* 2001). Stroud *et al.* (in prep.) give a rather provisional population estimate of 100,000-150,000 and suggest a 1% level of 1,250, which are adopted here.

Population *baueri*, SE & S Asia, Oceania (non-breeding)
Although not normally associated with Africa, this race has been recorded on the island of Frégate, Seychelles (Lucking 1996). It may potentially be more regular in the Indian Ocean than currently expected.

***Numenius phaeopus,* Whimbrel**

Population *phaeopus*, NE Europe (breeding) and population *islandicus,* Iceland, Faeroes, Scotland (breeding)
The main non-breeding range of both populations is along the Atlantic seaboard of Africa, where they are not readily separated. Stroud *et al.* (in prep.) give population estimates based on breeding data of 610,000 for *islandicus* and 156-298,000 for this population of *phaeopus*, yielding 1% levels of 6,100 (*islandicus*) and 2,300 (*phaeopus*). This gives a combined 1% level of 8,400 for use on the Atlantic coast of Africa. A few birds are also found inland, for instance in Mali. This is a widespread species of the Atlantic coast of Africa in a variety of habitats. It is found on rocky coasts of Cape Verde, deep in mangroves of Senegal and Guinea, in the extensive coastal dunes, beaches and islets of Mauritania and in muddy estuaries in Guinea-Bissau. It is not clear how far south either population extends, and probably birds from another population of *phaeopus* occur in west South Africa and Namibia.

Its widespread distribution along the Atlantic coastline of Africa makes it difficult to monitor the population in its non-breeding quarters. However, a number of key sites can be identified, including the Banc d'Arguin in Mauritania, where there were around 15,000 in January 1997 (Dodman *et al.* 1997) and the Bijagós Archipelago of Guinea-Bissau, from where 13,000 were estimate to occur in January 2001 (Frikke *et al.* 2002). This total for the Bijagós is lower than in previous years (e.g. 22,000 in 1992/93), but does not necessarily indicate a declining population. In January 2001, there were 13,573 on the Banc d'Arguin (C. Smit, *in litt.*). It is likely that the Niger Delta supports large numbers during the northern winter, though no data are currently available for this, the second largest delta in the world, which supports Africa's largest area of mangroves.

Population *phaeopus*, W Siberia (breeding), Southern & E Africa (non-breeding)
The number and status of this population are not well known, and Stroud *et al.* (in prep.) give a very broad estimate of D (100,000-1,000,000). The non-breeding range includes the whole coastline of Africa from around Libya eastwards to the Red Sea and continuing down the Indian Ocean seaboard to South Africa, and possibly Namibia and Angola as well. There are some records of birds inland, e.g. at Rift Valley lakes, but these are few in number. Further, the population *alboaxillaris* is presumed to visit the Indian Ocean coastlines, probably also passing through the Red Sea, so it is difficult to establish a population estimate based on data from Africa in this situation. This population also occurs in Madagascar, and probably both phaeopus and alboaxillaris are annual visitors to Seychelles (Skerrett *et al.* 2001).

Population *alboaxillaris*, SW Asia / East Africa & W Indian Ocean (non-breeding)
This race was originally described from the coast of Mozambique, when its breeding area was not known. Its status in relation to other forms of whimbrel is still not agreed. The extent of the non-breeding range is also not very clear, but is thought to include the islands and coasts of the West Indian Ocean, both in Africa and Southwest Asia. The population is thought to be less than 10,000 (Stroud *et al.* in prep.). In Africa, it is likely to occur in Seychelles and other Indian Ocean islands and coastlines from Somalia to Mozambique. 1,184 whimbrel were recorded in Mozambique's Bazaruto Archipelago in January 1998, but it is not known if these were *alboaxillaris* or *phaeopus* or a combination of the two. A provisional 1% level of 100 is appropriate, but in reality it is hard to apply this in Africa, where this race, sometimes referred to a steppe whimbrel, will not tend to be distinguished from *phaeopus* during the AfWC.

In summary, proposed 1% thresholds for whimbrel are:
Atlantic Seaboard: 8,400
Indian Ocean / Red Sea: 10,000
[It is not worth including the 1% level of 100 for *alboaxillaris* into the Indian Ocean / Red Sea total].

***Numenius tenuirostris,* Slender-billed Curlew**

This is a critically endangered species, for which the only confirmed breeding records are from the Tara region of Russia. The most regular non-breeding site in the 1980s and 1990s was Merja Zerga in Morocco, and there are scattered records during the northern winter from throughout the Mediterranean. Gretton (1994) gave a population estimate of 50-270 birds, whilst more recently BirdLife International (2000) suggest the population is <50. The survival of this species is in the balance.

***Numenius arquata,* Common/Eurasian Curlew**

Population *arquata*, Europe (breeding)
The non-breeding range includes West Africa, but this race is thought not to reach much further than the west-facing Atlantic seaboard from Mauritania to Guinea-Bissau. Overall, there is uncertainty as to the distribution of Eurasian curlew in Africa, and it may be that birds found south of Mauritania belong largely to *orientalis*. Here, it is assumed that most coastal birds reaching Guinea-Bissau belong to *arquata*, as count data along this coastline give a picture of fluctuating numbers at different sites. There were 6,683 at Mauritania's Banc d'Arguin in January 1997, a decrease by 54% from the 1980 total (Dodman *et al.* 1997) but a higher figure of 8,841 in January 2001 (C. Smit, *in litt.*). Frikke *et al.* (2002) estimated 6,300 in the Bijagós Archipelago, Guinea-Bissau in January 2001, compared to estimates of 3,750 in 1994 and 9,300 in 1992/93. 1,160 were counted in Senegal in January 1997 (Dodman *et al.* 1997) compared to only 414 in January 1998 (Dodman *et al.* 1999). There was little difference in coverage during these years. However, the bulk of the population remains in Europe during the northern winter.

There are conflicting population estimates, with Stroud *et al.* (in prep.) giving an estimate of 420,000 based on non-breeding data and Thorup (2002) giving a range of 244,410-320,553 breeding pairs in Europe and NW and CW Russia, equivalent to about 730,000-960,000 birds. It may be that birds of other races are included in the latter total, but equally many birds may be missed during the January counts.

Population *orientalis*, SW Asia, E Africa (non-breeding)
The presumed non-breeding range in Africa is vast, from sub-Saharan West Africa to Central, Eastern and Southern Africa and the Indian Ocean. In the west of the range there is likely to be mixing with *arquata*, whilst in other areas there may well be mixing with *suschkini*. Van der Kamp & Diallo (1999) counted 372 in a core area of Mali's Inner Niger Delta in April 1999. Brouwer & Mullié (2001) report this species to be rare in Niger, whilst it is uncommon in the wetlands of northern Cameroon, with only about 10 records (Scholte *et al.* 1999). In East Africa, it is a regular visitor to the coastline in particular, also to Lake Turkana (Britton 1980). 888 were recorded in East Africa in January 1998, with 741 in Kenya and 145 in Tanzania (Dodman *et al.* 1999). Only around 500 are thought to reach South Africa. It appears to be less common in Southern Africa than in former times (Harrison *et al.* 1997), and the population may be in decline. *Orientalis* is an annual migrant to Seychelles in small numbers (Skerrett *et al.* 2001). Stroud *et al.* (in prep.) give a population estimate of C. Given its wide distribution across Africa at both inland and coastal sites and throughout the Indian Ocean, it is not possible to base any estimate at present on non-breeding data from Africa.

Population *suschkini*, SW Asia, E Africa (non-breeding)
The non-breeding range of this population may well include Africa, such as the East African coastline and Indian Ocean islands. The population is thought to be small and in decline due to conversion of steppe in the breeding areas of Central Asia to agriculture. No population estimate is available.

***Tringa erythropus,* Spotted Redshank**

Population *erythropus*, Europe (breeding)
Spotted redshank is a fairly widespread visitor to West Africa during the northern winter. There appear to be two migratory strategies, with some birds following the East Atlantic flyway and others crossing the Sahara to inland wetlands and to the Gulf of Guinea coastline. AfWC data suggests that the bulk of the population cross the Sahara, with Ghana and Mali apparently being the most important countries. In January 1998, 4,962 were recorded in coastal wetlands of Ghana, including 2,828 at the Keta Lagoon complex, whilst 4,366 were counted in the Inner Niger Delta of Mali (Dodman *et al.* 1999). A similar total (4,431) was recorded in the Lac Débo / Lac Walado Débo are of Mali in February 1999, though there were <1,000 in the same area in both January and March (van der Kamp & Diallo 1999). In January 1997, 4,065 were counted in Nigeria's Hadejia-Nguru wetlands (Dodman *et al.* 1997), whilst only 1 was found here in January 1998 (Dodman *et al.* 1999). In Niger, there are also varying numbers, mostly found in a few large concentrations, with a broad country estimate of 2,268-35,040 (Brouwer & Mullié 2001). In northern Cameroon there have been seven records, the highest being of 60 in April 1991 (Scholte *et al.* 1999). 100 were recorded in Cameroon in January 1999, when southern wetlands were also covered, and only 3 in Chad (Dodman *et al.*, in prep.), presumably at the eastern limits of the non-breeding range.

In West Africa then, there is a picture of a rather mobile migrant, probably moving within the sub-region and dispersing quite widely to large inland wetlands, ephemeral wetlands and coastal lagoons and estuaries. It is rather hard to base an estimate on these data, but certainly they suggest a population of over 50,000. Stroud *et al.* (in prep.) base their population estimate of 30,000-76,000 on breeding data, which is adopted here. Improved monitoring in West Africa may cause this to need revision upwards, as certainly a number of potentially important sites are not regularly covered during the AfWC.

Population *erythropus*, SW Asia, E Africa (non-breeding)
The non-breeding range of this population is from Central to East Africa, where it is possibly most numerous in northeast Africa. It is not well monitored across this range, and doubtless many sites are missed in the AfWC. In East Africa, it is mainly found inland at lake margins and marshy pools in Kenya, Uganda and northern Tanzania (Britton 1980), and over 100 are regularly found in rice fields at Ahero near Kisumu in west Kenya (Zimmerman *et al.* 1996). Presumably the Sudd swamps of South Sudan harbour reasonable numbers. It is a vagrant in Southern Africa, and this species does not occur in Seychelles.

Overall, there are significantly less records for this population than for the West Africa non-breeding population, though there are significant gaps in coverage. Stroud *et al.* (in prep.) retain the estimate of Perennou *et al.* (1994) of B/C (10,000-100,000).

***Tringa totanus,* (Common) Redshank**

Population *totanus*, East Atlantic (non-breeding)
The non-breeding range includes North and West Africa. It is most common along coastlines from Tunisia to Guinea, not generally recorded in high numbers elsewhere. There were 107,063 recorded in Mauritania in January 1997, where there was an increase of 46% on the 1980 count for the Banc d'Arguin (Dodman *et al.* 1997), whilst a lower 80,329 were counted here in January 2001 (C. Smit, *in litt.*). There are rather fluctuating counts from the Bijagós Archipelago, Guinea-Bissau, where Frikke *et al.* (2002) summarise estimates of 70,400 (1986/87), 38,400 (1992/93), 53,250 (1994) and 28,000 (2001). There is thus no clear picture from West Africa of population trends. This species is generally rare inland in West Africa, and van der Kamp & Diallo (1999) only observed 5 in a central area of Mali's Inner Niger Delta in 1998/99. In Niger, Brouwer & Mullié (2001) give a broad national estimate for Niger of 18-7,351, also indicating that confusion with *T. erythropus* is possible. Redshank is uncommon in northern Cameroon (Scholte *et al.* 1999), though any birds found here may be from the population of *totanus* breeding in Eastern Europe (see below).

Stroud *et al.* (in prep.) give a population estimate of 222,250 based on non-breeding data, which is rather lower than breeding data might suggest. Data from a few countries does not appear to be included in this total, such as Senegal, where over 1,000 are regularly recorded in the AfWC, and Sierra Leone, whilst rather low figures are used for a number of other countries, such as Tunisia and The Gambia. It is recommended to add an additional 3,000 for Senegal and The Gambia, 4,000 for the coastline from Sierra Leone to Benin, 5,000 for the coastline of South Morocco, where there is poor coverage and some potentially important sites and 15,000 for Tunisia and Libya. This would give a revised estimate of 249,250, rounded up to 250,000. This figure may still be too low, and quite possibly an estimate based on breeding data, which would suggest 304,000-495,000, is more appropriate.

Population *totanus*, East Europe (breeding)
The extent of the non-breeding range is not well known. It is thought that birds reaching the West African coast from Nigeria to Gabon belong to this population, also birds in Egypt and further west along the Mediterranean coast. A potentially important site is the Niger Delta, Nigeria, from where data are lacking. Stroud *et al.* (in prep.) give an estimate of 223,000-464,000 based on breeding data. Although there is little monitoring in the non-breeding range, it is first important to establish the limits of this range, so that potential key sites may be targeted.

Population *ussuriensis*, SW Asia & E Africa (non-breeding)
This is not a common species in East Africa, where only 15 were recorded in the January 1998 AfWC, mostly from Eritrea (Dodman *et al.* 1999). It is most likely much more numerous in the Red Sea than along the Indian Ocean coastline. It occurs fairly widely in Southern Africa, but is generally rare throughout. It is only vagrant to Seychelles. Stroud *et al.* (in prep.) give an estimate of 213,000-326,000 based on breeding data.

***Tringa stagnatilis,* Marsh Sandpiper**

Population *stagnatilis*, Europe (breeding)
This is a fairly common non-breeding visitor in West Africa, with a wide distribution and cosmopolitan range of wetland habitats. As it does not generally occur in large concentrations and is widespread, AfWC totals do not pick up the bulk of the population. 2,150 were recorded from throughout the sub-region in January 1998, including 779 at Mare d'Oursi in Burkina Faso (Dodman *et al.* 1999). In Niger, it is found mostly on isolated wetlands, and an average country estimate of 3,170 is given (Brouwer & Mullié 2001). There are surely likely to be at least 20,000 in West Africa during the northern winter, quite possibly more. Stroud *et al.* (in prep.) base their estimate of 14,000-40,000 on breeding data, which is adopted here.

Population *stagnatilis*, SW Asia, East & Southern Africa (non-breeding)
A population of C (25,000-100,000) based on Perennou *et al.* (1994) is used. This may be too low, but there are too many gaps in coverage in the AfWC at potentially important inland wetlands to warrant revision of the upper figure. 4,691 were counted in a countrywide census of Tanzania in January 1995 (Dodman & Taylor 1995), whilst only 908 were recorded from throughout Southern Africa in January 1998 (Dodman *et al.* 1999). Summers *et al.* (1987) has estimated totals of 7,100 for Kenya, 5,000-10,000 for Sudan and about 1,000 for coastal Southern Africa. Britton (1980) reports of counts of >1000 at Ferguson's Gulf, Lake Turkana, whilst 1,690 were counted in the Tana River Delta in 1993 (Bennun & Njoroge 1999). There were 2,441 at Lake Manyara in January 1995 (Baker & Baker 2001). It is expected that non-breeding totals in Eastern and Southern Africa exceed the lower end of this estimate by a reasonable margin, and it is recommended to increase the lower figure of this range to 50,000. A new population estimate is thus proposed of 50,000-100,000, with a 1% level of 1,000, as data from SW Asia could surely result in a total population higher than 100,000.

***Tringa nebularia,* (Common) Greenshank**

Population *nebularia*, Europe (breeding)
The greenshank is a common non-breeding visitor to West Africa, with some birds migrating along the East Atlantic flyway down to Mauritania and probably at least as far as Guinea, and with others crossing the Sahara to inland wetlands and presumably the coastline of the Gulf of Guinea. It is not known how far south this population reaches down the Atlantic seaboard of Africa. In January 1998, 10,994 were recorded, with 7,191 in coastal Ghana, including 3,413 at Songhor Lagoon (Dodman *et al.* 1999). In January 1997, there was a similar number in Ghana (7,530), but the sub-regional total was up to 13,690, due largely to the inclusion of the Banc d'Arguin in the census, where 4,030 were counted and a higher figure of 1,200 in Senegal (Dodman *et al.* 1997). Frikke *et al.* (2002) estimated there to be 2,200 birds in the Bijagós Archipelago of Guinea-Bissau in January/February 2001, whilst 5,100 were counted here in January 2001 (C. Smit, *in litt.*). Van der Kamp & Diallo (1999) recorded 1,701 in a core area of Mali's Inner Niger Delta in February 1999. Brouwer & Mullié (2001) give an average country estimate for Niger of 2,463 based on AfWC data from 1992-1997, where it is found mostly at isolated wetlands. This is a common visitor to the wetlands of Cameroon (Scholte *et al.* 1999).

It is thus fairly easy to account for around 50,000 birds in West Africa from a selection of regularly counted sites. However, with a very wide coastal and inland distribution at both large and small wetlands, it is hard to gain a true picture of the numbers present in West Africa during the northern winter.

Stroud *et al.* (in prep.) thus base their population estimate of 234,000-395,000 on breeding data, and propose a 1% level of 3,100. These are adopted here.

Population *nebularia*, SW Asia, E & S Africa (non-breeding)
As with a number of other wader populations breeding in SW Asia and spending the northern winter in SW Asia and Eastern/Southern Africa, the status and size of this population are not well known. In East Africa, it is recorded in largest numbers from the coast though widespread inland (Britton 1980). 2,216 were counted in Tanzania in January 1995, when 2,043 were also counted in Kenya (Dodman & Taylor 1995). This is an annual migrant in Seychelles (Skerrett *et al.* 2001) and to other Indian Ocean islands. A reasonable number of birds spend the northern summer also in Africa; for instance 177 were recorded in Madagascar in January 1998, whilst 395 were counted at one site, the Tsiribihina Delta between March and April 1998, and 245 were recorded in the July 1997 census, though some sites were counted earlier than this (Dodman *et al.* 1999). 3,428 were counted in Southern Africa in January 1998, including 1,771 in the Bazaruto Archipelago of Mozambique.

Again, it is not possible to draw up a sound population estimate based on these data, due largely to gaps in coverage both in Africa and in SW Asia, but especially in northeast Africa, including Sudan. Even then, the widespread nature of greenshank in Africa makes it difficult to estimate the population size, though the population may be monitored well at a number of key, probably coastal sites.

Stroud *et al.* (in prep.) give a very broad estimate of D (100,000-1,000,000) and suggest a provisional 1% level of 5,500.

***Tringa ochropus,* Green Sandpiper**

Population *ochropus*, Europe (breeding)
Stroud *et al.* (in prep.) give an estimate of 1,000,000-1,890,000 birds and a 1% level of 15,000 based on breeding data. Such a figure seems very high given the low levels and general paucity of records of this species in its main non-breeding areas in Europe and North and West Africa. However, this is an easily overlooked bird, a generally quiet, non-congregatory and widespread wader found in a wide range of wetlands including ricefields, marshes and mangroves. Numbers in the AfWC are always low, e.g. 125 in January 1998, when Côte d'Ivoire produced the highest total (Dodman *et al.* 1999). Indeed, this bird may well prefer the more lush habitats of the tropics to Sahelian wetlands, and is also common on Gulf of Guinea islands, where many other waders are only vagrants. Gatter (1998) estimated 2,500 to occur in coastal wetlands of Liberia, whilst Altenburg & Wymenga (1986) give a total of 100-500 for the ricefields of Guinea-Bissau. This species appears to be very rare in the Inner Niger Delta of Mali (van der Kamp & Diallo (1999), whilst Brouwer & Mullié (2001) estimate an average total for Niger of 882, mainly at isolated wetlands.

It would seem likely that this bird mainly occurs in West and Central Africa in the tropical belt, where it is probably common and widespread in well-vegetated wetlands, ricefields, farmlands and many other areas that are generally wet and lush during the prolonged rainy season. In such areas, this species will never be adequately monitored, and nor will any key sites be identified with such a high 1% level.

Population *ochropus*, SW Asia, Eastern Africa (non-breeding)
In East Africa, the green sandpiper is widespread, favouring secluded pools, puddles, streams, mangrove creeks and brackish lagoons, where it usually found singly (Britton 1980). The limits of this population in Africa are not well known, but presumably includes birds in Eastern, Southern and much of Central Africa. As in the European breeding population (above) it is not possible to gauge an accurate population estimate based on non-breeding data, due its widespread distribution and non-congregatory habits. Only 162 were recorded in the January 1998 AfWC from East and Southern Africa (Dodman *et al.* 1999). Green sandpiper is not particularly common in Southern Africa, but is certainly common in Zambia, where the rainy season provides numerous small pools. Solitary birds even remain faithful to particular water-filled potholes in the road throughout the rains! (pers. obs.). Stroud *et al.* (in prep.) give an estimate of D/E.

***Tringa glareola,* Wood Sandpiper**

Population *glareola*, W Europe, W Africa (non-breeding)
A population estimate has been given of 855,000-1,220,000 birds and a 1% level of 10,400 based on breeding data (Stroud *et al.* in prep.). This population has a wide distribution in West Africa, where it is most common in freshwater wetlands, including ricefields. Altenburg & van der Kamp (1986) have estimated that 25,000-50,000 occur in ricefields of Guinea-Bissau, whilst Gatter (1998) suggests that 3,500 occur in the coastal wetlands of Liberia. 4,235 were counted in Burkina Faso in January 1998 (Dodman *et al.* 1999), whilst only around 250 were recorded in a central zone of Mali's Inner Niger Delta in April 1999 (van der Kamp & Diallo

1999). Overall, this species is significantly under-recorded in West Africa, due its widespread nature and preference for well-vegetated wetlands, marshes, ricefields and temporary wetlands.

In some parts of the breeding range this population is thought to be in decline. Väisänen (1997) has suggested that declines may be due to factors affecting the non-breeding areas in West Africa. Although some wetlands have been negatively affected by agricultural and other developments and by periods of drought, it seems unlikely that such factors will have affected this population overall. This is not a selective species, and can be found in almost any freshwater wetland, including artificial habitats, such as drainage ditches and sewage outlets.

Population *glareola*, SW Asia, E & S Africa (non-breeding)
The population is estimated by Stroud *et al.* (in prep.) to be >2,000,000 birds. It has a wide non-breeding range in Africa, from Northeast Africa to South Africa. Summers *et al.* (1987) estimated there to be 250,000-500,000 in Sudan and 7,500 in Kenya. Urban *et al.* (1986) report of 30,000 on the west shore of Lake Edward in Democratic Republic of Congo. Stroud *et al.* (in prep.) give further country estimates for (mainly) Southern Africa as follows: 28,000 in Angola, 40,000 in Zambia, 10,000 in Mozambique, 10,000 in Namibia, 20,000 in Botswana, 2,000 in Swaziland, 30,000 in Zimbabwe, 51,000 in South Africa and 5,500 in Madagascar. AfWC counts are generally rather low, as this bird is not restricted to wetlands but to a wide range of wet habitats in the rainy season. With a vast area of suitable habitats available from the Nile to the Cape, an estimate of >2,000,000 birds seems perfectly reasonable.

***Tringa cinerea,* Terek Sandpiper**

Population *cinerea*, Persian & Arabian Gulfs, coasts of Eastern & Southern Africa, West Indian Ocean (non-breeding)
Terek sandpiper is a vagrant in West Africa, though it may be found more regularly from around the Gulf of Guinea to Angola and further south. It is a reasonably common migrant on the coasts of East Africa and is annual in small numbers at Lake Turkana (Britton 1980). It is locally common along coastlines in Southern Africa, and is common along the coastlines of Madagascar. It is an annual visitor to Seychelles in small numbers, mainly to the granitic islands (Skerrett *et al.* 2001). 3,326 were recorded in Tanzania in January 1998, almost all of them in the island groups of Pemba and Zanzibar, whilst 282 were recorded in the Bazaruto Archipelago the same month (Dodman *et al.* 1999). Probably only about 1,000 birds reach Southern Africa south of the Zambezi (Harrison *et al.* 1997).

Stroud *et al.* (in prep.) base their estimate of 52,000-215,000 on breeding data and give a 1% threshold of 1,300. Scott (2002) considers that breeding birds from Western Siberia are omitted from this figure and suggests a broader estimate of D (100,000-1,000,000). There are likely to be at least 40,000 spending the northern winter in Africa, with 'guesstimates' of some 1,000 in Southern Africa, >1,000 in northern Mozambique, >5,000 in Madagascar and Indian Ocean islands, >7,000 in Tanzania, >5,000 in Kenya, >5,000 in Somalia (Indian Ocean), >10,000 in the Red Sea / Arabian Gulf and perhaps 1,000 on the Atlantic seaboard of Africa. In adding non-breeding totals from the Middle East / SW Asia, an estimate based on non-breeding data is likely to fall within the range of Stroud *et al.* (in prep.). Whilst there may be unknown numbers breeding in Western Siberia, these birds might utilise Asia more significantly in the non-breeding season. With a largely coastal distribution, this bird could probably be monitored quite successfully on its non-breeding grounds in Africa. The population is probably stable (Stroud *et al.* in prep.).

[check DS comments; update text]

***Tringa hypoleucos,* Common/Eurasian Sandpiper**

Population *hypoleucos*, N, W & C Europe (breeding)
There is a population estimate of 1,400,000-2,050,000 and a 1% threshold of 17,300 based on breeding data (Stroud *et al.* in prep.). This is a common non-breeding visitor to West Africa throughout the sub-region. It is vastly under-recorded during the AfWC, e.g. with 1,520 recorded from the sub-region in January 1998 (Dodman *et al.* 1999). Frikke *et al.* (2002) estimate 750 to be in the Bijagós Archipelago of Guinea-Bissau in January/February 2001, though estimates in previous years were much higher, with 2,900 in 1992/93. This is not an abundant bird at all at the Banc d'Arguin. Very few were recorded in monitoring of a core area of the Inner Niger Delta, Mali in 1998-1999, when the highest count was only 11 in August 1998 (van der Kamp & Diallo 1999). Brouwer & Mullié (2001) estimated an average total of 1,046 for Niger, where this bird occurs especially at isolated wetlands. It is common in northern Cameroon, where it is found throughout the year (Scholte *et al.* 1999). It seems that a good many birds remain in (West) Africa throughout the year.

Some estimates from Africa include 9,100 in the coastal zone of Guinea-Bissau (Zwarts 1988), 2,000-5,000 in ricefields of Guinea-Bissau (Altenburg & van der Kamp 1986), 9,200 in Sierra Leone (Tye 1987), 25,000-30,000 in coastal wetlands of Liberia (Gatter 1998) and 800 in the coastal zone of Ghana (Ntiamoa & Grieve 1987). These estimates fall far short of the breeding population estimate.

However, this species may be found often singly at a wide range of wetlands. It is common on beaches, rocky shorelines, lake edges, reservoirs, stretches of rivers, in marshes, coastal lagoons, estuaries, mangroves and a wide range of temporary wetlands and wet season puddles. Thus, the AfWC is never going to pick up a reasonable number, and it would seem wiser indeed to base the estimate on breeding data.

Population *hypoleucos*, SW Asia, Central, Eastern & Southern Africa and west Indian Ocean (non-breeding)
Stroud *et al.* (in prep.) give a population estimate of E (>1,000,000) and a provisional 1% threshold of 10,000, also giving some national estimates for Africa, including 15,000 in Mozambique and 12,000 in South Africa. It is hard to make reliable estimates, as this is such a widespread bird in Africa, with this population occurring right through Eastern, Central and Southern Africa. It is also common in Madagascar, where for instance 1,411 were counted in January 1998 (Dodman *et al.* 1999). It can be found in almost any wetland habitat, including temporary pools (and puddles) and artificial wetlands.

***Arenaria interpres,* Ruddy Turnstone**

Population *interpres*, NE Canada, Greenland (breeding)
Stroud *et al.* (in prep.) give a population estimate of 94,000. The main non-breeding area is in Western Europe, but at least some birds reach Northwest and West Africa, though numbers are probably low.

Population *interpres*, West Africa (non-breeding)
The non-breeding range of ruddy turnstones breeding in Fennoscandia and West Russia is in West Africa. Stroud *et al.* (in prep.) produced a low non-breeding total of 25,100 from the 1990s, opting instead to base their population estimate on breeding data, coming up with 46,000-119,000 birds. The low figure was due largely to an apparent decrease on the Banc d'Arguin of Mauritania, where the 1997 total of 7,692 was 58% lower than the 1980 total (Dodman *et al.* 1997). In January 2001, 8,524 were counted here (C. Smit, *in litt.*). However, a few countries were also missing in their non-breeding total, including Senegal, where there are surely at least 10,000; e.g. 2,590 were counted in January 1998 (Dodman *et al.* 1999). The January 2001 count in the Bijagós Archipelago was also low at 5,100, compared with 7,500 in 1994, 7,900 in 19992/93 and 10,800 in 1986/87 (Frikke *et al.* 2002).

No declines appear to be noted in the breeding population, so there may have been a shift in population. However, it is perhaps impractical to rely too heavily on data from a few key sites, as this is a very widespread bird along much of the West African coastline, also on the islands of Cape Verde and the Gulf of Guinea. As such, many birds will always be missed during the AfWC, and the cumulative total of all the scattered small groups may form a substantial component of the non-breeding population. It is not clear how far east along the West African coastline this population occurs. There is probably a mixing of populations in the Gulf of Guinea, where the Niger delta is surely a key site.

Population *interpres*, SW Asia, Eastern & Southern Africa and Indian Ocean islands (non-breeding)
Ruddy turnstone is an annual migrant in large numbers throughout Seychelles mainly from October to March (Skerrett *et al.* 2001), and 389 were counted in the January 1998 AfWC here (Dodman *et al.* 1999). This population is presumably distributed quite widely in much of the Indian Ocean, though there are few AfWC records from Madagascar. In East Africa, it is mainly found on passage in September to November along the coast, whilst small numbers are also regular inland at Rift Valley lakes (Britton 1980). There is some evidence to suggest that birds reaching Southern Africa undertake a loop migration via the east coast of Africa, and returning northward along the west coast of Africa to the Gulf of Guinea, thence across the Sahara to the East Mediterranean (Harrison *et al.* 1997). Two of the key sites in Southern Africa are in Namibia, Walvis Bay and Sandwich Harbour, where several thousand may be found, e.g. 5,496 in Namibia in January 1996 (Dodman & Taylor 1996).

Stroud *et al.* (in prep.) give a population estimate of 100,000 based on estimates during the non-breeding season. These estimates total 84,900, with an additional 15,100 added to account for countries of the Arabian Peninsula and Northeast Africa for which no data were available. Although the figures used to make up this estimate do not seem always consistent with AfWC results, with some countries not included either, the overall estimate seems to be of about the right order, and is adopted here, with a 1% level of 1,000.

***Calidris canutus,* Red Knot**

Population *canutus*, Atlantic seaboard of Africa (non-breeding)
Red knot is fond all along the Atlantic seaboard of Africa, with some birds reaching around as far as Mozambique (presumably this population). However, the vast majority of birds are found at three main sites – Mauritania's Banc d'Arguin, with over 75%, Guinea-Bissau's Bijagós Archipelago with around 10% and Dahkla Bay in southern Morocco with around 2.5%. It would appear that the population has decreased markedly during the 1990s, and the January 1997 total for the Banc d'Arguin (259,356 recorded for Mauritania) was 37% lower than the total for 1980 (Dodman *et al.* 1999). However, the 2001 estimate for the Banc d'Arguin was 303,979 (C. Smit, *in litt.*) whilst the count for Bijagós Archipelago was also significantly higher than in previous years, with 133,000 compared to 43,500 in 1994, 31,300 in 1992/93 and 90,000 in 1986/87 (Frikke *et al.* 2002). The total from these two sites in 2001 was 436,979.

Stroud *et al.* (in prep.) give a population estimate of 340,000 based on non-breeding data, which is clearly far too low when taking 2001 data into account. Using the same national estimates for other countries as Stroud *et al.* (in prep.), totalling 50,000, a figure of 486,979 is arrived at. However, some totals for other countries used by Stroud *et al.* (in prep.) also appear rather low, for instance 500 for Namibia. The numbers of *canutus* found on the coasts of Namibia and South Africa are thought to number about 13,000, and have undoubtedly increased during the 20th century (Harrison *et al.* 1997). A figure of 6,500 is thus added to account for low estimates used for Southern Africa, and the total of 496,500 is rounded up conservatively to 500,000, accepting that some potentially important sites are still missing, such as the Niger Delta of Nigeria. A 1% threshold of 5,000 is thus proposed, whilst the status of declining is believed to be inappropriate.

This figure is very similar to the population estimate of 521,000 given by Smit & Piersma (1989), and the trend of stable is proposed. It is possible that this species is fairly flexible in its choice of non-breeding sites, and whilst the Banc d'Arguin is clearly the most important site, low counts here do not necessarily mean a population decrease. Rather, birds may be scattered more evenly than usual along the flyway.

***Calidris alba, S*anderling**

Population *alba*, East Atlantic, West Africa (non-breeding)
The southern limit of the non-breeding range is not clearly established. Birds may reach as far as South Africa, but it is generally thought that the bulk of the population only reaches West Africa, perhaps to the Gulf of Guinea / northern Angola. Stroud *et al.* (in prep.) give an estimate of 123,000, which includes 77,800 for West Africa. This is a widespread visitor to the West African coastline, found in large concentrations at some sites, but also in small groups throughout, including Cape Verde and Gulf of Guinea islands. In January 2001, there were 20,546 on the Banc d'Arguin (C. Smit, *in litt.*), and 11,400 estimated for the Bijagós Archipelago (Frikke *et al.* 2002). Whilst this 2001 figure for Bijagós is lower than the figure of 24,300 used by Stroud *et al.* (in prep.), there are also some omissions in the total for West Africa, including the Niger Delta, which surely supports good numbers. Further, 1,341 were counted along the very short coastline of The Gambia in January 1998 (Dodman *et al.* 1999). If this figure were extrapolated across the rest of West Africa, a much higher total would no doubt be achieved.

The population estimate of 123,000 and the 1% level of 1,200 are adopted here, though it is expected that this estimate is somewhat low. This is a widespread bird all along the coastline, whereas it only tends to be counted at a selection of coastal bays, wetland complexes and coastal lagoons during the AfWC counts.

Population *alba,* SW Asia, E & S Africa (non-breeding)
The non-breeding range of this population is thought to extend to Southwest Africa, including the whole eastern seaboard of Africa and Indian Ocean islands. Sanderling is also found inland in small numbers, especially in the Rift Valley. The bulk of the population appears to reach Southern Africa. The estimate of 140,000 (Stroud *et al.* in prep) includes about 16,000 birds in Southwest Asia, 26,000 in Eastern Africa and 98,000 in South Africa, Namibia and Angola (Stroud *et al.* 2002). There are certainly some omissions in this figure, including some Indian Ocean states and Somalia, whilst some national figures seem very low, e.g. 750 for Madagascar. 500 were counted at the River Linta Estuary and Cap Fenambosy in southern Madagascar in March 1998 and 176 at the Tsiribihina delta in west Madagascar in April 1998 (Dodman *et al.* 1999). It is thus recommended to increase this estimate by about 10,000 to account for the Indian Ocean states.

Data are not added for Somalia or for countries of the Red Sea, as numbers here are not well known. *C. alba* is probably not common in Northeast Africa during the northern winter, but is surely common on passage. A new population estimate of 150,000 is thus proposed with a 1% threshold of 1,500.

***Calidris minuta,* Little Stint**

Population *minuta*, Europe & West Africa (non-breeding)
There are thought to be approximately 18,000 birds remaining in Europe during the northern winter, whilst a total of 158,000-178,000 has been estimated for coastal north-west and West Africa, from Tunisia to Guinea, yielding a population estimate of 200,000 (Stroud *et al.*, in prep.). In January 2001, Frikke *et al.* (2002) estimated only 24,000 for the Bijagós Archipelago of Guinea-Bissau, compare to figures of 40,500 in 1994, 59,700 in 1992/93 and 102,000 in 1986/87. also in January 2001, 41,248 were counted on the Banc d'Arguin, Mauritania (C. Smit, *in litt.*) compared to 12,511 in January 1998 (Dodman *et al.* 1999). The figures from Guinea-Bissau suggest a decline in the population. However, it is rather difficult to be precise, due to the widespread occurrence of little stint in both coastal and inland wetlands. In January 1998, close to 51,000 were counted in West Africa, in a year when neither the Bijagós nor the Banc d'Arguin were surveyed, though there were over 25,000 in Mali (Dodman *et al.* 1999). Brouwer & Mullié (2001) give an average national estimate for Niger of 27, 179 based on AfWC counts from 1994-1997, where this species is mostly found on isolated wetlands.

Some of the national estimates used by Stroud *et al.* (in prep.) seem way too low, and the population estimate of 200,000 seems out of balance when viewed alongside an estimate of some1,000,000-2,000,000 *T. ochropus* in the sub-region. This is a widespread wader found in coastal and inland wetlands, including ricefields, artificial wetlands, the edges of pools and rivers, mangroves and estuaries. It is almost certainly heavily under-recorded during the AfWC. Whilst no changes to the estimate are proposed for the time being, especially in view of the breeding estimate of up to 171,000 birds (Thorup 2002), it would not be surprising if the actual population was significantly higher.

Population *minuta*, SW Asia, E&S Africa (non-breeding)
This population has a very wide breeding range which spans most of Central, Eastern and Southern Africa and the Indian Ocean islands. Perennou *et al.* (1994) estimated the population to be around 1,000,000. Stroud *et al.* (in prep.) retain this figure and give a 1% threshold of 10,000. These are adopted here. The population may be even higher than this, as this is such a widespread wader throughout its non-breeding range, probably found at high concentrations in some major wetlands, whilst also found scattered throughout in small groups. A figure of 250,000-500,000 has been proposed for Sudan (Nikolaus in Summers *et al.* 1987). There are tens of thousands at Lake Turkana and many thousands in all the smaller Rift Valley lakes (Britton 1980). There is a count of 15,310 from the Tana River Delta, Kenya in 1993 (Bennun & Njoroge 1999), and 78,675 were counted at Lake Manyara in January 1995 (Baker & Baker 2001).

***Calidris temminckii,* Temminck's Stint**

Population *temminckii*, Europe, West Africa (non-breeding)
Stroud *et al.* (in prep.) give a population estimate of 39,000-80,000 and a provisional 1% threshold of 600 based on breeding data, which are adopted here. The main non-breeding range is West Africa, where this is a fairly widespread bird of mainly inland wetlands. Very few are usually recorded in the AfWC, though 148 were counted at Hadejia-Nguru wetlands, northern Nigeria in January 1994 (Taylor 1994). Found usually singly in ricefields, marshes and the edges of lakes, pools and rivers, this wader is easily overlooked.

Population *temminckii*, SW Asia, Eastern & Central Africa (non-breeding)
The population size and limits are not well understood, but there are apparently substantial numbers breeding in European Russia. Stroud *et al.* (in prep.) give an estimate of E (>1,000,000). The non-breeding range includes Eastern and Central Africa. There are very few records south of Kenya, and it is hard to imagine the bulk of this apparently large population spending the northern winter in Africa, unless it is seriously overlooked in areas such as southern Sudan and the Congo Basin.

***Calidris alpina,* Dunlin**

Population *alpina*, W Europe, NW Africa (non-breeding)
The bulk of this population, with breeding grounds in Western Siberia, spends the northern winter in Western Europe, though some birds occur regularly from Tunisia to Morocco. This population may also reach northern Mauritania. Stroud *et al.* (in prep.) give a population estimate of around 1,330,000, and use a 1% threshold of 13,000.

Population *alpina / centralis*, SW Asia, NE Africa (non-breeding)
This population reaches Northeast Africa, where it is not well monitored. Stroud *et al.* (in prep.) give a population estimate of 300,000 and a 1% threshold of 3,000.

Population *schinzii*, Iceland, Greenland (breeding)
The non-breeding range of this population includes Northwest Africa as far south as the Banc d'Arguin, Mauritania. Dunlin also occurs further south in much lower numbers. 781,402 dunlin were counted on the Banc d'Arguin in January 2001 (C. Smit, *in litt.*), whilst only 200 were estimated for the Bijagós Archipelago in the same month (Frikke *et al.* 2002). The Banc d'Arguin total is less than that for 1997, when 919,895 were counted (Dodman *et al.* 1997). Small numbers are also recorded in Senegal and elsewhere in West Africa, but no significant numbers seem to occur south of Mauritania. Stroud *et al.* (in prep.) give a population estimate of 940,000-960,000 and a 1% threshold of 9,500, which are adopted here.

Population *schinzii*, Baltic (breeding)
Stroud *et al.* (in prep.) give a population estimate of 3,600-4,700 based on breeding data. This population reaches as far as northwest Africa.

Population *schinzii*, Britain & Ireland (breeding)
Stroud *et al.* (in prep.) give a population estimate of 23,000-26,000 based on breeding data. This population reaches as far as northwest Africa.

Population *arctica*, NE Greenland (breeding)
The population estimate of 21,000-45,000 (Stroud *et al.*, in prep.) is based on breeding data. This population is considered to spend the northern winter wholly within West Africa, where its numbers are dwarfed by *schinzii*.

***Calidris ferruginea,* Curlew Sandpiper**

Population *ferruginea*, West Africa (non-breeding)
The main non-breeding sites for this population are in West Africa, where two sites, the Banc d'Arguin and the Bijagós Archipelago together support the majority of birds. Elsewhere, the curlew sandpiper is found along most coastlines, and also in Sahelian wetlands. Stroud *et al.* (in prep.) estimated the population at 740,000, using figures of 239,000 for Mauritania and 327,000 for Guinea-Bissau. In 2001, the estimated number at the Banc d'Arguin was 101,548 (C. Smit, *in litt.*) and at the Bijagós 505,000 (Frikke *et al.* 2002), giving a total of around 607,000. This is around 40,000 more than the combined figure for Mauritania and Guinea-Bissau used by Stroud *et al.* (in prep.). Further, the figure used for Mauritania includes some 13,000 found on the coast outside the Banc d'Arguin (Dodman *et al.* 1997). Given the rather uniform nature of the coastline between the Banc d'Arguin and the Senegal border, this is a reasonable estimate for here. However, even then, the extensive coastline west to Cap Blanc is not included, so it seems to reasonable to use an estimate of 20,000 birds for Mauritania outside of the Banc d'Arguin.

Further east and south along the coastline, good numbers may be found in several countries, and Stroud *et al.* (in prep.) use figures of 94,000 for Guinea and >30,000 for Sierra Leone. However, the figure of >12,000 for Ghana is too low; >34,000 were counted from a selection of coastal lagoons in Ghana in January 1999 (Dodman *et al.*, in prep.). A figure of 15,000 is also used for Cameroon, and given the count of >9,000 in the Estuaire du Cameroun in February 1998 (Dodman *et al.* 1999) this also seems reasonable. However, it seems inconceivable that the Niger Delta does not support a significant number of birds. This is the most extensive estuarine mangrove system in (West) Africa, and an estimate for this site should be included in the total. Other low estimates are probably Senegal, Liberia and to a lesser extent Côte d'Ivoire.

Inland, just short of 4,000 were recorded in a core area of Mali's Inner Niger Delta in January 1998 (Dodman *et al.* 1999), and this bird is found across the Sahel belt from Mali and Burkina Faso through to Niger and Chad, though generally in low numbers. However, it is suggested to add around 10,000 to the combined figures for Sahelian wetlands (inland countries) of Stroud *et al.* (in prep.), especially for Mali where just over 1,000 is used.

The following additions are thus proposed for inclusion in the estimate:

- An additional 40,000 for the Bijagós and Banc d'Arguin based on combined 2001 totals
- An additional 20,000 for the Mauritanian coastline, excluding the Banc d'Arguin, based on 13,000 found on other monitored coastlines, but with incomplete coverage in the northwest
- An additional 25,000 for Ghana's coastline based on January 1999 data
- An additional 10,000 for wetlands of the Casamance, Senegal (comparable habitat to Sine Saloum, where >16,000 are regularly counted)
- An additional 30,000 for the Niger Delta (a conservative estimate)

- An additional 10,000 for inland Sahelian wetlands

This results in an additional 135,000, and a new population estimate is thus proposed of 875,000, with a 1% level of 8,750.

Whilst there have been some increases in the past at particular sites, e.g. at Banc d'Arguin, it is not possible to be certain that the population is increasing. The 2001 data illustrate this well. The count for the Banc d'Arguin is much lower than previous counts, but the overall figure for the Banc d'Arguin and the Bijagós is higher. Further, this is a widely distributed bird along the coastline, and increased coverage is likely to result in further increases in the population estimate. However, the trend of increasing given by Stroud *et al.* (in prep.) is retained, in view of the apparent increases for the combined figures of the Bijagós and the Banc d'Arguin. The importance of coordinated surveys at these two sites, and ideally at sites in between cannot be over-estimated for the purposes of monitoring this and other wader populations that use the East Atlantic flyway.

Population *ferruginea*, Eastern & Southern Africa and Indian Ocean (non-breeding)
This population has a wide non-breeding range encompassing Northeast, Eastern, Central and Southern Africa, as well as the Indian Ocean islands. Stroud *et al.* (in prep.) give a population estimate of 330,000, based on a suite of country estimates in the non-breeding range. In East Africa, this is a common visitor and passage migrant in most littoral and wetland habitats from August to May, numerous at Rift Valley lakes (Britton 1980). 12,960 were recorded at the Tana River Delta, Kenya in 1993/94 (Bennun & Njoroge 1999), whilst 13,266 were recorded in Tanzania in January 1998, mainly from Zanzibar and Pemba (Dodman *et al.* 1999). These islands were not covered in the January 1995 AfWC in Tanzania, when 16,084 were counted (Dodman & Taylor 1995). In 2000, a further 16,043 were counted in the Rufiji Delta, which was not included in any previous count, so the estimate of 90,000 for Tanzania used by Stroud *et al.* (in prep.) seems reasonable.

Other figures used by Stroud *et al.* (in prep.) seem reasonable, including 55,000 for Mozambique and 90,000 for South Africa, but some other estimates seem low, e.g. Kenya (1,717) and Namibia (26,000), where there were close to 38,000 in January 1998 (Dodman *et al.* 1999). Further, no figures are given for most countries of the Horn of Africa, including Somalia, with its coastline of >3,000km, nor for the Indian Ocean. This is an annual migrant in good numbers throughout Seychelles (Skerrett *et al.* 2001), and probably in other island groups. 680 were counted in a single wetland complex in west Madagascar in March 1998, whilst a further 600 were counted at another site in southern Madagascar in April 1998.

It is thus recommended to add the following figures to the current population estimate:

- An additional 10,000 for the Horn of Africa (a conservative estimate)
- An additional 35,000 for Kenya (25,000 at coast at 10,000 inland)
- An additional 10,000 for Indian Ocean islands, including Madagascar
- An additional 15,000 for Namibia (key sites and extensive coastline)

This gives an extra 70,000 birds, resulting in a new (conservative) population estimate of 400,000, and a 1% level of 4,000.

***Limicola falcinellus,* Broad-billed Sandpiper**

Population *falcinellus*, NE Europe (breeding)
Stroud *et al.* (in prep.) give a population estimate of 61,000-64,000 and a 1% level of 630 based on breeding data, which are adopted here. The non-breeding range includes, in Africa, the Mediterranean coastline, by virtue of a small 'sub-population' in Tunisia, down the Red Sea to the East African coast. Very few birds are recorded in the AfWC. One of the few sites where this species is recorded with any regularity is the Sabaki River mouth of Kenya, where up to 80 may be found (Bennun & Njoroge 1999). There are, in addition, scattered records inland, and Lake Turkana may well be a regular non-breeding site (Britton 1980). Presumably this bird is largely over-looked along the coastlines of the Horn of Africa and the Red Sea. The non-breeding range also includes Southwest Asia, but it is not known what proportion may be found in Asia and Africa.

***Philomachus pugnax,* Ruff**

Population *pugnax*, West Africa (non-breeding)

In West Africa, this is an abundant visitor during the northern winter to Sahelian wetlands, also being found in smaller numbers along the entire coastline. Trolliet & Girard (2001) present a comprehensive review of the status of this population in West Africa, estimating a total of just over 1,000,000 birds, based on:

- Inner Niger Delta, Mali: 300,000
- Lake Chad Basin: 500,000
- Senegal Valley: 200,000

Ruff is widespread throughout the Sahel. Brouwer & Mullié (2001) give an average country estimate for Niger of 93,768 based on AfWC data from 1994-1997, though part of this figure would be included in the Lake Chad Basin estimate above. In January 1998, around 2,500 were counted in Burkina Faso and a few hundred in The Gambia (Dodman *et al.* 1999), whilst Altenburg & van der Kamp (1986) have estimated 50,000-75,000 in ricefields of Guinea-Bissau.

Breeding data from Europe and Russia suggest the population is at least 1 million birds, possibly much more. Girard & Kirby (1997) give estimates of 105,500-139,200 pairs for Europe and around 3 million for Russia, whilst Heath *et al.* (2000) suggest a broader range of 1 million to 10 million pairs. More recently, Thorup (2002) gives a figure for Europe of 122,175-195,111 pairs. It is difficult to define precise biogeographical populations for ruff (Stroud *et al.*, in prep.), and whilst all birds breeding in Europe probably spend the northern winter in West Africa, it is not clear how many from Russia (western Siberia) do as well.

Thus, although non-breeding data would point to a population of just over 1 million birds, the broader estimate of E (>1,000,000) of Stroud *et al.* (in prep.) is adopted here, given the need to account for potentially large numbers of breeding birds from western Siberia. The population is apparently in decline, with definite declines documented in Europe. Some authors consider this may be due to negative impacts in Africa. This bird is certainly harvested for consumption in Mali (Kone, *in litt.*), but there is probably adequate habitat still available, despite some possible reductions in floodplain area.

Population *pugnax*, SW Asia, Eastern & Southern Africa (non-breeding)
The non-breeding range of this population spans from Northeast Africa to South Africa. It is no doubt heavily under-recorded during the AfWC, as some significant major wetland systems are not covered adequately. These include the Sudd swamps of southern Sudan, floodplains of northern Central Africa (especially CAR & Democratic Republic of Congo), lake edges and plains of eastern Democratic Republic of Congo and extensive wetlands throughout much of East and Southern Africa. G. Nikolaus (in Summers *et al.* 1987) has estimated there to be some 300,000-1,000,000 in Sudan during the northern winter. Other high counts include 71,285 at Zambia's Kafue Flats in January 2001 and 20,000+ in the Bangweulu Swamps (Leonard 2001), and 45,486 at Lake Manyara in January 1995 (Baker & Baker 2001). The estimate of E (>1,000,000) of Stroud *et al.* (in prep.) is thus adopted here. The population may indeed be well over 1 million, and is not known with any real degree of certainty. It is recommended to use a provisional 1% level of 15,000, given than this population is surely larger than the population found in West Africa during the northern winter.

***Phalaropus lobatus,* Red-necked / Northern Phalarope**

Population *lobatus*, West Eurasia (breeding)
Large flocks have been recorded in Central Asia and in the Arabian Sea, which seems to be the core non-breeding zone of this breeding wader from the Holarctic. During the northern winter it is locally abundant in offshore waters off Somalia and Kenya, and is also found inland in the Rift Valley in small numbers in Ethiopia and Kenya, especially at Lake Turkana (Urban *et al.* 1986). Stroud *et al.* (in prep.) give a population estimate of E (>1,000,000) and a provisional 1% threshold of 10,000.

***Phalaropus fulicaria,* Grey/Red Phalarope**

Population *fulicaria*, African Atlantic waters (non-breeding)
This is a high Arctic breeding wader, which, like other phalaropes has a largely marine distribution during the non-breeding season. It is widespread in offshore waters of the Atlantic seaboard of Africa, from northwest Africa to Southwest Africa. Small numbers and groups are regularly seen off Senegal (Marr *et al.* 1998; pers. obs.) and out of Cape Town, South Africa (Cohen *et al.* 2001), whilst 1 was observed in October 1999 off Agadir, Morocco (Dawson *et al.* 2001). These low numbers suggest that this population may be thinly distributed across a large area of the Atlantic Ocean. Stroud *et al.* (in prep.) give a population estimate of 920,000 based on breeding data from Canada, yielding a 1% threshold of 9,200.]

13. Gulls, Terns & Skimmer

***[Larus leucophthalmus,* White-eyed Gull**

This gull is not uncommon along the coastlines of the Red Sea, with good numbers especially in Eritrea, where the Dehalak Archipelago and other offshore islands are important breeding sites. Clapham (1964) recorded 1,393 birds from 10 of the 220 islands in 1962, including young. 200 adults have been recorded recently at Harat Island (Coulthard 2001). The Massawa coast is an important non-breeding area, where Smith (1953) recorded flocks of hundreds at Herghigo. J. Tiwari (*in litt.*) recorded 16 near Massawa in the January 2001 AfWC, whilst there were regularly high counts here in other months, including one of 160 at Gurgussum beach in November 2001 (Tiwari, in prep.). In Djibouti, Laurent (1990) reports that this species probably bred on the offshore islands of Moucha and associated islets. A number of sites along the north coast of Somalia are also still likely to be important, such as the islands of Jasiira Ceebaad and Jasiira Sacaada Diin, where thousands bred during the first half of the twentieth century (Robertson 2001).

There are important breeding colonies in Egypt, including 3,000 pairs at the Hurghada Archipelago, 50+ pairs at Tiran island, 75+ pairs at Wadi Gimal island, 50+ pairs at Qulân island, 70+ pairs at the Siyal islands, with breeding also occurring at the Rawabel islands and Zabargad island (Baha el Din 2001).

There are several island groups in the Red Sea which are not regularly visited by ornithologists / ecologists, which are likely to still support breeding colonies of this gull, for which there are more reliable records from earlier in the twentieth century. In light of the status of stable (given by Rose & Scott 1997) in the lack of other contradictory information, the current population estimate of 20,000 is supported. This species makes regular movements mainly within the Red Sea.

***Larus hemprichii,* Sooty Gull**

This gull is fairly common in the Red Sea and along the East African coast as far south as Tanzania. Further south, it is recorded less regularly. It also occurs in gulfs of the Middle East, as far east as Pakistan. It is recorded from several coastal sites of Yemen, including Qishn Beach and Abdullah Gharib Lagoons, where >7,800 and >1,700 respectively have been recorded in the northern spring (Scott 1995).

In Africa, islets off Kiunga on the north Kenya coast support breeding colonies, whilst two other coastal sites support internationally important numbers – the Sabaki river mouth (400 in 1995) and the Tana River Delta (up to 830 in 1993) (Bennun & Njoroge 1999). *L. hemprichii* makes seasonal movements, mainly occurring along the East African coastline as a non-breeding visitor. The current population estimate of D is supported, with a 1% level of 400.

***Larus canus,* Common Gull**

Population *canus*, Iceland, Ireland, Britain, east to White Sea (breeding)
The population which breeds in Iceland, Ireland, Britain, East to the White Sea reaches North Africa in its non-breeding season. Information from Africa does not really contribute to the population estimate.

***Larus audouinii,* Audouin's Gull**

Population *audouinii*
This is a regular non-breeding visitor to the West African coastline, with more records in recent years than in the past. The Saloum Delta of Senegal is of international importance for this species, where 437 were recorded in January 1998 (Dodman *et al.* 1999). There are regular records also from the Mauritanian coastline and from the Bijol Islands of The Gambia, 49 were recorded in January 2000 (Barnett *et al.*, 2001). The current estimate of 57800 is based on breeding pairs in the Mediterranean, and is supported here.]

***Larus dominicanus,* Southern Black-backed Gull / Kelp Gull**

Population *dominicanus*, Antarctic peninsula & sub-Antarctic islands
There are 10,000-20,000 pairs in Antarctica and sub-Antarctic islands (Crawford, in prep.). This population occurs on some of South Africa's sub-Antarctic Islands. In 1974-77, 30 pairs bred at Prince Edward Island and 200 pairs at Marion Island (Williams *et al.* 1979). From 1998-2000, 65-88 pairs bred at Marion Island.

Population *vetula*, coastal Southern Africa
The kelp gull is widely distributed in the southern hemisphere, which, in Southern Africa occurs from Luanda, Angola to Maputo, Mozambique (Urban *et al.* 1986). It is essentially a coastal bird, though in the Western Cape, it is regularly recorded inland, particularly at abattoirs, livestock carcases and rubbish dumps (Hockey *et al.* 1989). Breeding is recorded from 81 localities between Ilha dos Tigres, southern Angola and the Eastern Cape. The population in 1976-81 was 11,200 pairs, with 2300 in Namibia and 8900 in South Africa, representing 34,000 individuals (Crawford *et al.* 1982, 1991). The population increased at several localities in the Cape in the 1970s and 1980s (Steele & Hockey 1990). At nine islands in the Western Cape, the population increased from 6486 pairs in 1976-81 to 17,900 pairs in 2000, with an overall population in 2000 of at least 22,500 pairs (Crawford, in prep.). Increases are attributable to increased breeding success due to cessation of control measures (Crawford *et al.* 1982), to recent reintroductions at two Namibian islands and Bird Is in Algoa Bay, and also to decreased post-fledging mortality due availability of supplementary food from human activities (Steele & Hockey 1990). In 2000, the two largest colonies, at Schaapen and Dassen Islands, each held more than 6,000 pairs, whilst Jutten and Meeuw Islands both held more than 2000 pairs. A new population estimate of 70,000 is given based on Crawford (in prep.), whilst the trend is increasing.

Population (?) *vetula*, West Africa
There are recent breeding records of kelp gull from West Africa, with the first breeding record being of 1 nest in the Saloum Delta, Senegal in 1983 (Erard *et al.* 1984); an earlier record of a nest found in 1980 may have belonged to a mixed pair of *L. dominicanus* and *L. fuscus graellsii* (Dupuy 1984). More recently, there were up to 4 adult kelp gulls at Saloum in 1998, with at least one nest (Keijl *et al.* 2001). There was 1 nest in the Bijol Islands of The Gambia in June 2000 (Barnett *et al.* 2001). These records constitute a major range expansion of kelp gull, and could potentially lead to a new population becoming established. There are apparently no breeding records between The Gambia and Southern Africa.

Population *judithae*, Southern Indian Ocean
This proposed sub-species has recently been described by Jiguet (2002). It breeds in the southern Indian Ocean on sub-Antarctic islands, with a population of 5,000-10,000 pairs, with the following numbers given by Jiguet (2002) after Higgins & Davies (1996):

- Kerguelen: 4,000-8,000
- Crozet: 700-1,400
- Heard: 100+
- Marion: 200
- Prince Edward: 30

Birds on the latter three islands were not examined by Jiguet (2002), but are presumably from the same population. The total population estimate is thus 5,000-10,000 pairs or 15,000-30,000 individuals. A mid-point 1% level of 225 is proposed.

Population *melisandae*, Madagascar
This proposed subspecies, which occurs along the coasts of southwest and south Madagascar from Toliara to Tôlanäro, was recently described by Jiguet (2002). Langrand (1990) considered it to be common on Lake Tsimanampetsotsa, and also reports of breeding between October and January. F. Hawkins (*in litt.*) estimates a total population of <1,000 individuals, and knows of no current breeding locations, never seeing more than about 30 together at a time.

***[Larus argentatus,* Herring Gull**

Population *heuglini,* Heuglin's Gull, S Kola Peninsula to E Taimyr Peninsula (breeding)
Some authorities consider Heuglin's gull to be a discrete species. Its main non-breeding area is from the Middle East south to East Africa and NW India. In Africa, it is found mainly along the coast during the northern winter, where it is difficult to differentiate from *taimyrensis* and *L. fuscus*. With a certain amount of confusion surrounding the status and identification of this population, Information from Africa is not readily used for contributing to estimating the population.

Population *taimyrensis,* Yenisey and Taimyr Peninsula (breeding)
Like *heuglini*, this population also frequents the East African coast during the northern winter. Rose & Scott (1997) provide a population estimate of 35,000-40,000.

***Larus cachinnans,* Yellow-legged Gull**

Population *michahellis* , W & S Europe, NW Africa Mediterranean
No change is proposed to the Rose & Scott (1997) population estimate of 350,000.

Population *atlantis*, Azores to Madeira & Canary Islands
No change is proposed to the Rose & Scott (1997) population estimate of 35,000-50,000.

***Larus fuscus,* Lesser Black-backed Gull**

Population *fuscus,* East Africa south to Tanzania, SW Asia (non-breeding)
No change is proposed to the Rose & Scott (1997) estimate of 200,000-300,000, which is based on the European breeding population.

Population *graellsii,* Iceland, Faeroes, Ireland, Britain, France, Iberia (breeding); Population *intermedius*, Netherlands, Denmark, S Norway, Ebro Delta (breeding)
L. fuscus is a widespread non-breeding visitor to West Africa, most numerous along the coast. Over 50,000 were recorded in the AfWC in January 1998 (Dodman *et al.* 1999), mostly from Senegal and Mauritania. Both races *graellsii* and *intermedius* occur, but these are not generally separated in most field observations, and information from Africa is not appropriate to use for estimating the population of either population. Rose & Scott (1997) estimate the population of *graellsii* to be 400,000.

***Larus ichthyaetus,* Great Black-headed Gull**

Population *ichthyaetus*, Black & Caspian Seas (breeding)
No change is proposed to the population estimate of 72,000-120,000, which is based on the breeding population. Its non-breeding range includes Eastern Africa, where Zimmerman *et al.* (1996) mentions it is 'fairly common in small numbers at Malindi, the Sabaki River mouth and Lake Turkana'.]

***Larus cirrocephalus,* Grey-headed Gull**

Three separate populations are proposed for grey-headed gull in Africa, one in West Africa, centred on the western seaboard, a second in Eastern and Southern Africa and a third in Madagascar.

Population *poiocephalus,* West Africa
There are important breeding colonies on the western seaboard, notably in Senegal, where Keijl *et al.* (2001) counted 3,000 nests at Langue de Barbarie and 4,565 nests in the Saloum Delta in 1998. There are much lower numbers in the Banc d'Arguin, with only 50 pairs in 1984 (Campredon 1987). Barnett *et al.* (2001) estimated 238 nests on Bijol Island, The Gambia in March 2000, (though estimated numbers in subsequent months varied somewhat). Keijl *et al.* (2001) estimate a northwest African population of 10,000 pairs, or 30,000 birds. Veen (in press) summarises more recent data, with sub-regional totals of 7,565 pairs in 1998 and 7,738 pairs in 2000 (excluding The Gambia) and 10,000 pairs in 2001 (excluding The Gambia and Mauritania), giving a range of 8,000-10,000 pairs (or 24,000-30,000). It would seem likely that this population is resident in West Africa, with main centres of occurrence inland being the Niger River and Lake Chad. Throughout much of the sub-region however this species is rather rare, and, to the east of the sub-region, there are only scattered records from Cameroon and SW CAR (Borrow & Demey 2001). The estimate of 10,000 pairs, or 30,000 individuals is adopted here.

Population *poiocephalus,* Eastern & Southern Africa
This is a locally abundant bird of (largely) inland wetlands of Eastern and Southern Africa. However, its distribution is not wide in Eastern Africa, where it is largely found in the Rift Valley and Lake Victoria Basin. Over 100,000 have been recorded roosting on the Musambwa Islands on Lake Victoria (Ugandan side), where over 20,000 have also been recorded breeding in April 1999 (Byaruhanga *et al.* 2001). At Lutembe Bay, also on Lake Victoria, 12,000 were recorded in 1997 (Byaruhanga et al, 2001). In January 1991 there was a count of 9,040 at Lake Nakuru National Park in Kenya (Bennun & Njoroge 1999). 3,954 were recorded at Lake Eyasi in Tanzania in January 1995 (Baker & Baker 2001).

Further south, Leonard (2001) gives 1,000+ for the Barotse floodplain in Zambia, whilst in Botswana, most records are of single birds or small groups (<10), with an exceptional 200 at Nata Delta in August 1997 Tyler (2001). It is regular at local fishing ports and at numerous fishing or riverine villages in Zambia. It is fairly widespread in South Africa, but nowhere reaches the high numbers of Lake Victoria, which would appear to be a key area for this species. Du Toit *et al.* (2002) summarise all breeding data south of the Zambezi and Cunene rivers, giving summed totals of pairs of 529 for Namibia, 13 for Botswana, 64 for Zimbabwe and 2,649

for Zimbabwe. This gives a sub-regional total of 3,255 pairs (about 10,000 individuals), higher than an earlier estimate of about 2,000 pairs in the 1990s. Grey-headed gulls in Southern Africa are considered by some authors as forming a separate population.

Fishpool & Evans (2001) give a population estimate of C/D for this species in Africa, but the lower limit here would be appear to be too low, especially in light of records from Uganda. It would seem that there are at least 150,000 in the Lake Victoria Basin, at least 50,000 in the Rift Valley of Eastern Africa, perhaps up to 50,000 in Central Southern Africa (around Zambia and Malawi), and with at least 10,000 south of the Zambezi. A new population estimate of 200,000-400,000 is thus proposed, with a mid-point 1% level of 3,000.

[TRIM possible increase … but hard to use this.]

Southern Africa
UPDATE.
In WPE4 the Central & Eastern Africa population, estimated with a population size of 200,000 – 400,000 individuals in WPE3, was erroneously split into two populations, one for 'Coastal South Africa' with a population size of 200,000 – 400,000 individuals, the other for 'Central & East Africa' with a population size of D (100,000 – 1,000,000. Du Toit et al. (2002) recognized birds in 'Southern Africa' as a discrete population, detailing nests from across the region, with 2,649 nests in South Africa and 3,255 nests for the region as a whole, ie around 10,000 birds, most of which breed at inland sites. A number of recoveries from inland ringing sites were of birds that had dispersed to various coastal locations (Underhill et al. 1999), and numbers counted at the coast are many less than breed along the coast. Thus there is no support for a separate 'coastal' population (as ascribed in error in WPE5). Parker (1999 & 2005) estimates 6,000 in southern and central Mozambique, where it also breeds.

Du Toit et al. (2002) assume that birds breeding in north Botswana belong to this population, but do not include Zambia, where there are breeding areas just north of Botswana. The small number of breeding birds in northern Botswana and Zimbabwe may better 'fit' with the Central and Eastern Africa population. It is not clear if an increase in the austral winter in northeast Botswana (Tyler 2011) is due to birds moving in from the south or further north. There is wide dispersal of especially young birds from breeding areas in South Africa, and there is interchange between birds in South Africa and further north, eg Botswana, Zambia and no doubt further. However, gulls in South Africa are largely resident, dispersing within the country, along coastlines and further north, also performing nomadic movements (Hockey et al. 2005).

Counts in the IWC are sometimes more than 10,000 birds in South Africa, to which should be added birds in Mozambique (ca. 6,000) and elsewhere. Thus, it would seem more appropriate to give a range, from 20,000 – 40,000. This population has increased greatly at inland localities, at least partly due to feeding on garbage (Harrison et al. 1997). Many of the nest estimates used in the review of Du Toit et al. (2002) were from decades past, probably before some of the main population increases occurred.

Population *poiocephalus*, Madagascar
F. Hawkins (*in litt.*) suggests that it is probable that the Malagasy population of *poiocephalus* is separate from those on continental Africa, with no evidence of movement between. In Madagascar, this gull probably occurs at no more than 100 sites with totals of around 10-100 individuals at each (F. Hawkins, *in litt.*). This gives a population estimate in the order of 1,000-10,000 individuals.

***Larus hartlaubii,* Hartlaub's Gull**

Population *hartlaubii,* Coastal SW Africa C Namibia - SW Cape Province
This is an endemic species of the west coast of Southern Africa, occurring between Cape Agulhas in the south as far north as the Cunene River mouth. Its distribution coincides largely with the distribution of kelps (Williams *et al.* 1990). Several population estimates have been made since the 1970s. Between 1976 and 1983 there were some 8400-9500 pairs, with about 15% of the population in Namibia and 85 % in South Africa (Cooper *et al.* 1984, Duffy *et al.* 1987). From 1984-1989 there were 12,000-13,700 pairs at 31 breeding localities, with about 10% in Namibia and 90% in South Africa, and a total population of 32,000-33,000 individuals (Williams *et al.* 1990, Crawford *et al.* 1991). Breeding is now known to occur at 58 localities (Crawford & Underhill submitted). Crawford (in prep.) documents major fluctuations between years in the breeding population at a number of sites, both offshore (Namibia and South Africa) and along the coast (South Africa).

Crawford & Underhill (submitted) indicate substantial inter-annual fluctuations in the numbers of birds breeding. This makes it difficult to base a population estimate on data from one year only. Rose & Scott

(1997) give an estimate of 25,000 based on Williams (1993), which could still be of the right order. However, a range is preferred, to capture better the fluctuating nature of the breeding population. Thus, a new population estimate of 25,000-35,000 is proposed. Although the population is clearly fluctuating, the overall trend would appear to be increasing, as given by du Toit *et al.* (2002).

UPDATE: Maximum January counts of over 14,000 in 2008 and 2009. TRIM: possible decline 2003 – 2012.
Crawford & Underhill (2003): Probably decline or stable now after past increases.
ADD THIS TO REFS. P. 1193 IN ROBERTS.

***[Larus ridibundus,* Black-headed Gull**

Population *ridibundus*, Mediterranean (breeding)
No change is proposed to the current population estimate of D.

Population *ridibundus*, SW Asia, E Africa (non-breeding)
No change is proposed to the current population estimate of 250,000.

***Larus genei,* Slender-billed Gull**

Population *genei*, West Africa
This population occurs widely along the Mauritanian and Senegalese coasts, with numbers decreasing as far south as Guinea, which is its southern limit (apart from vagrants). There are breeding colonies at the Banc d'Arguin, Mauritania, where 1,776 were counted in 1998 (Hafner *et al.* 1999), whilst in the same year Keijl *et al.* (2001) counted 5,550 nests in Senegal, with 2,100 at the Langue de Barbarie and 3,450 in the Saloum Delta. In 2001, there were 6,000 nests at Saloum and 1,400 at Langue de Barbarie (Veen, in press). Another breeding site in Senegal, Kalissaye, was not visited that year. 256 birds were recorded in The Gambia in January 1998, though none were counted in Guinea-Bissau and only 1 in Guinea (Dodman *et al.* 1999). Keijl *et al.* (2001) propose a new population estimate of 7,500 pairs (22,500 birds), which is adopted here. There are some rather conflicting estimates of this population from the 1970s and 1980s, but Dupuy (1984) estimated 5,000 pairs in Senegal, agreeing well with the current picture. It would seem likely that this species is stable, with a widespread occurrence along the coast in most suitable areas. Availability of suitable nesting sites may be a factor limiting spread or increase of the population, though it is surprising that this bird is not more regularly seen in Guinea-Bissau.

Population *genei*, Black Sea, Mediterranean
No change proposed to the population estimate of 123,000-237,000, which is based on breeding pairs in Europe.

BirdLife estimate European breeding population 37,000-56,000 pairs (111,000-168,000 individuals). To this we must add:

Egypt:	5,688 nests Delta lakes, birds also at Lake Qaran (Mills 1998), so add 17,000
Libya:	0
Tunisia:	5,000-6,000 pairs (=15,000-18,000) Birds of Tunisia
Algeria:	0
Morocco:	ca. 20 (=60) TV

Total to add = 10,708-11,708 = 32,000-35,000

So, total = 140,000-205,000

Population *genei*, W, SW & S Asia (breeding)
No change proposed to the current population estimate of 150,000. *L. genei* has recently been recorded in Uganda at Lutembe Bay, presumably stragglers from this population. More regular non-breeding sites in East Africa are lakes Turkana and Nakuru and the Tana River Delta (Kenya), where 490 were recorded in 1983 (Bennun & Njoroge 1999).

***Larus melanocephalus,* Mediterranean Gull**

Population *melanocephalus*
No change proposed to the population estimate of 570,000-1,110,000, which is based on breeding pairs in Europe.

***Larus minutus*, Little Gull**

Population *minutus*, N, C & E Europe (breeding)
No change proposed to the population estimate of 60,000-90,000, which visits northwest Africa in the non-breeding season. In West Africa, this bird is a vagrant, but there are a good number of scattered records from as far south as Gabon.

***Xema sabini*, Sabine's Gull**

Population *sabini*
This highly migratory pelagic gull is recorded along virtually the whole western seaboard of Africa, with key non-breeding areas being off Namibia and South Africa. The population of this species can be estimated much better using data from its main breeding areas in the Arctic.

***Sterna nilotica*, Gull-billed Tern**

There are three populations, one of which breeds in Northwest and West Africa. There are no breeding records from other regions of Africa, but this bird is a regular non-breeding visitor, especially to East Africa, down to Southern Africa. It is an annual migrant in small numbers throughout Seychelles, mainly October-December (Skerrett *et al.* 2001). The origin of non-breeding birds is unclear, especially in Eastern Africa, where they may well include individuals of all three populations.

Population *nilotica*, West Europe to West Africa (breeding)
BirdLife International / European Bird Census Council (2000) provide an estimate for the summed breeding populations of West and Southwest Europe of 2,376-2,803 breeding pairs (i.e. 7,128-8,409 individuals). No attempt is made here to questions this figure. In Northwest and West Africa, this species breeds in Mediterranean countries and along the West African seaboard to Senegal. Keijl *et al.* (2001) present an overview of the apparently fluctuating status of this population in Africa, and provide an estimate of 800 pairs. Given the fluctuating nature of breeding data, it is felt that a population range would be more appropriate, reflecting uncertainty as to the status of this species, especially in Mauritania. A new population estimate for Africa is thus proposed, based on the following breeding data:

Libya:	Probably no more than a few pairs (Meininger *et al.* 1994). *Population estimate = 5 pairs.*
Tunisia:	250-400 pairs at Kneiss; 70 pairs at Salines de Thyna (Amari & Azafzaf 2001). *Population estimate = 320-470 pairs.*
Algeria:	Irregular breeder (Hollom *et al.* 1988). *Population estimate = 20 pairs.*
Morocco:	Has bred; current breeding status uncertain. There is a good possibility that small colonies exist, for instance in the Dakhla area. *Population estimate = 0 pairs.*
Mauritania:	Supports important breeding colonies, especially at the Banc d'Arguin, where there were 1,600 pairs in 1978 (Browne 1981), though only 660 pairs in 1995 (Gowthorpe *et al.* 1996). PNBA (1988) give a figure of 1,180 pairs for the 1984-1985 breeding season in the Banc d'Arguin. Other sites include a small colony near Nouakchott, where Gowthorpe *et al.* (1996) reported 15 pairs in 1995, whilst Lamarche (1988) provides a record of 1,860 pairs at Aftout es Sahéli, Toumbos in September 1987. A small colony has also been found some 80km south of Nouakchott. Whilst breeding records are somewhat irregular and certainly fluctuating, the Mauritanian coastline is vast and probably not regularly covered during this species' breeding season. *Population estimate = 500-1,500 pairs.*
Senegal:	At the Senegal River mouth (Langue de Barbarie) there were 200 pairs in 1972, 300 pairs in 1973 (Latour 1973) and 200 pairs in 1984 (Coulthard 2001). Surprisingly, there is little information of more recent records. In the Saloum Delta, there were 309 pairs in 1997 (Coulthard 2001), though Keijl *et al.* (2001) recorded only 8 pairs here at the Salines de Kaolack, but this was early in the breeding season. *Population estimate = 100-500 pairs.*

This provides an estimate of 1,045-2,495 pairs, or 3,135-7,485 individuals for Africa. Adding the European population estimate results in 10,263-15,894 birds, rounded to 10,000-16,000; a mid-point 1% level of 130 is proposed.

Population *nilotica*, Black Sea, E Mediterranean (breeding)
BirdLife International / European Bird Census Council (2000) provide an estimate for the summed breeding populations of the Black Sea and East Mediterranean of 4,480-12,570 pairs, which is accepted here. The non-breeding range is mainly Eastern Africa, with birds probably migrating along the Nile Valley. It is much less

numerous in Southern Africa, though it is regular in Zambian wetlands, for instance at the Kafue Flats (pers. obs.). In December 1989 a flock of several thousand birds was feeding on short-grass plains in the Serengeti National Park, Tanzania, exploiting an abundance of invertebrates during a heavy rainstorm that had caused temporary flooding; the Rift Valley lakes of Tanzania probably support slightly fewer than 8,000 birds. (Baker 1996). However, after a visit to Lake Segara in Western Tanzania in November 2000, N. Baker (*in litt.*) revises this figure upwards, suggesting a total of some 12,000 birds in Tanzania (all populations). This suggests that the estimate based on breeding data may be too low. However, due to difficulties of separating populations in Africa, no amendments are proposed.

Population *nilotica*, SW Asia (non-breeding)
The Rose & Scott (1997) estimate of B is based on Perennou *et al.* (1994). This population most likely reaches Eastern Africa in the non-breeding season, including coastal Tanzania. It is a regular visitor to the Tanzanian coast, where Bregnballe *et al.* (1990) noted 150 in the Rufiji Delta. There are likely to be only a thousand or so which occur along the coast (Baker, 1996). It is difficult to use information from Africa to contribute information to this estimate.]

***Sterna caspia,* Caspian Tern**

Population *caspia*, Southern Africa (breeding)
The Rose and Scott (1997) population estimate of 1500 is based on 500 pairs given for Southern Africa south of the Cunene and Zambezi Rivers (Cooper *et al.* 1992). Sub-regional totals from January counts are regularly over 600 (AfWC reports), e.g. 982 counted in July 1996 and 775 in January 1997 (Dodman *et al.* 1997). One of the most important sites is the Saint Lucia wetland system, where there were 426 in July 1996 and 210 in January 1997 (Dodman *et al.* 1997). However, this bird also occurs further north into Angola, Zambia and Mozambique, where breeding has been reported from the Zambezi River Mouth (Clancey 1996). There are four known inland breeding sites in Southern Africa (south of Cunene/Zambezi), including Nata Delta, of Sua Pan, Botswana, where there were 26 pairs in 1985 (Skinner 1997).

Caspian tern is a regularly recorded non-breeding visitor to Zambia, especially on the Kafue Flats, where there were 34 in July 1997 (Dodman *et al.* 1999) and 104 in July 1993 (Taylor 1993). Most AfWC records are from July, though there are occasional records from January. In Angola, it is an uncommon but regular visitor (May-August) in small groups from Cunene mouth to Luanda; no breeding has been recorded (Dean 2000). In Mozambique, it is an uncommon species present throughout the year at the coast and at inland lakes, usually seen in one's and two's; there is no evidence of breeding observed for southern Mozambique (Parker 1999). Parker (1999) gives some records for Southern Mozambique (below), estimating there to be <500.

Caspian Tern Count data from Southern Mozambique (in Parker 1999):

Lake Bambene:	332 birds	September 1971
Lake Nhangul:	267 birds	September 1971
Inhaca Island:	250 birds	October 1976.

The population is stable (du Toit *et al.* 2002).

Population *caspia*, Madagascar, Europa & Aldabra Group (breeding)
F. Hawkins (*in litt.*) indicates that there are probably 5-10 sites in west Madagascar with breeding populations of <50 pairs, and 3-4 sites in the north with 10-20 pairs, and one colony of 50 pairs, giving a total population estimate of 960-1890 individuals. 50 pairs have been recorded on Nosy Faty in the Cape Anorontany archipelago, NW Madagascar. About 10-15 pairs breed on the coralline island of Europa in the Mozambique Channel.

Caspian tern is also a regular breeder in the Aldabra Group of Seychelles, presumed here to be a part of this same population. Here, up to 10 pairs breed on Ile Moustiques (Skerrett *et al.* 2001), whilst there is also a breeding record from Esprit and probable breeding on Ile Michel (Diamond & Pry-Jones 1986) and breeding records from Picard (Augeri & Pierce 1995), all part of Aldabra Atoll. Betts (2002) reports of 5 pairs in 2000 and 12 pairs in 1972, and lists also some other islands that may be used (Sylvestre, Champignon des Os, La Gigi). Breeding may also occur at Astove and Cosmoledo, where there are regular sight records (Skerrett *et al.* 2001). It was regularly seen feeding in shallow water at Cosmoledo in December 1996 (Mortimer & Constance 2000). Altogether, the Seychelles breeding population would appear to be very small, at around 10-30 pairs, giving a total population estimate of 1000-1965. A mid-point 1% level of 15 is proposed.

Population *caspia*, Western Africa (breeding)

Keijl *et al.* (2001) estimate a breeding population in West Africa of 13,500 pairs, based on data from Mauritania (ca. 4,000 pairs), northern Senegal (8,600 pairs at Saloum, no figure for the Senegal River mouth), The Gambia and Casamance (1,500 pairs) and Guinea-Bissau, where Britton (1986) gives a figure 400-600 pairs, though Brenninkmeijer *et al.* (1998) only found 84 nests in 1992. However, up to 1,330 pairs have been recorded in the Bijagós Archipelago of Guinea-Bissau (Robertson 2001), whilst Sa (2002) gives a figure of 1,246 birds at the islets of João Viera and Meio Cavalos from January 2001. PNBA (1988) give 2,575 breeding pairs in the Banc d'Arguin in 1984-1985. Barnett *et al.* (2001) recorded up to 124 nests on Bijol Island, The Gambia in March 2000. This population also reaches Guinea, where there were 350 pairs at Iles Tristao in 1988 (Altenburg & van der Kamp 1989). There are also small breeding colonies in Gabon at the Ogooué Delta (Christy 2001) and in Equatorial Guinea (Borrow & Demey 2001).

Hafner *et al.* (in press) found 5,774 pairs in the Banc d'Arguin in 1997,10,903 pairs in 1998 and 5,687 pairs in 1999, giving an average of 7,455 pairs. Keijl *et al.* (1998) consider that the count for 1998 might be an over-estimate, apparently representing a summation of counts made between February and June 1998. Veen (in press) gives a figure of 9,000 pairs for Saloum in 1998, 7,200 in 1999, 5,900 in 2000 and 8,100 in 2001, giving a total this year of 12,887 pairs from these two sites, giving an average of 7,550 pairs. Veen (*in litt.*) also gives a figure of 125 pairs for Langue de Barbarie in 2000. There would thus appear to be an average of 15,130 breeding pairs north of The Gambia. To this figure, estimates are added of up to 1,500 pairs for Casamance, about 100 pairs for Bijol, The Gambia, about 500 pairs for João Viera, The Gambia, about 350 pairs for Guinea and about 500 pairs for the Gulf of Guinea, yielding a total of around 18,000. A new population estimate is thus proposed of 15,000-20,000 pairs or 45,000-60,000 birds, in agreement with Veen (*in litt.*).

It would appear that this species, and probably other breeding terns in West Africa (especially *S. maxima*) use a range of breeding sites, usually offshore islands, probably favouring some sites more than others in different years. The main breeding site in Guinea (Pani Bankhi, Iles Tristao) appears to have disappeared under the waves recently, eroded away by the sea (N. Keita pers. comm.). The various local conditions and annual changes in breeding site utilisation would explain the rather different site records from year to year. The links between West African birds and those of coastal Central Africa should also be determined.

Keijl *et al.* (2001) also propose that the population seems to have increased markedly during the 1990s. Although there are certainly high recent breeding counts from Ile aux Oiseaux in the Sine Saloum Delta of Senegal, numbers elsewhere do not seem to be increasing in such a manner. Further, it is likely that past estimates did not include figures from all breeding sites. It is suggested that the population is probably stable, with a fluctuating utilisation of a series of nesting sites, depending on local conditions, such as shifting sands and fishing productivity.

[Population *caspia*, Europe (breeding)
This population visits North East Africa as a non-breeder, as does the Caspian Sea and Iranian population. Information from Africa is thus not readily useful in estimating the size or status of this population.

Population *caspia*, Caspian (breeding)
This population visits North East Africa as a non-breeder, as does the European breeding population. Information from Africa is thus not readily useful in estimating the size or status of this population.]

***[Sterna maxima*, Royal Tern**

Population *abididorsalis,* coastal West Africa (breeding)
The royal tern has a widespread non-breeding distribution along the West African seaboard from Morocco to the Gulf of Guinea, but breeding is restricted to the west-facing coastline from Mauritania to Guinea. The main breeding site is Ile aux Oiseaux in the Sine Saloum Delta, Senegal, whilst other important sites include the Banc d'Arguin (Mauritania), the Langue de Barbarie, Pointe de Sangomar and in the Casamance (Senegal), Bijol Island (The Gambia) and Rio Kapatchez (Guinea). Keijl *et al.* (2001) counted 23,000 breeding pairs in Senegal in 1998, with 21,000 pairs at Ile aux Oiseaux, though about 43,000 pairs were seen at this one site alone in June 1999 (Veen, in press). Hafner *et al.* (1998) provide a figure of 11,041 pairs for the Banc d'Arguin in May-June 1998, though there were only 1,180 in the 1984-1985 breeding season (PNBA 1988). Veen (in press) gives a figure of 9,893 pairs for the Banc d'Arguin in 1999. In May 2000, 7,360 nests were counted on Bijol Island, The Gambia (Barnett *et al.* 2001). There were 1,470 pairs at Rio Kapatchez, Guinea in 1988 (Altenburg & van der Kamp 1991) and 7,600 pairs in the Bijagós of Guinea-Bissau in 1994 (Robertson 2001).

A common thread between all sites is a high level of fluctuations in breeding numbers between years. It is most likely that this population has a network of potential or suitable breeding sites, which are used to varying degrees each year, depending on a number of, as yet unknown, factors. Indeed, some sites may not be used

at all in some years. Probable reasons include local fish availability close to the breeding grounds, disturbance (large nesting colonies are prone to egg collection by fishermen) and breeding site suitability. These terns nest close to the shore in dense colonies. It is most likely that the particular local habitat requirements are not always suitable in the shifting sand-spits and islets of West Africa that the tern favours.

Keijl *et al.* (2001) give a population estimate of 43,000 pairs, though Veen (in press) gives a higher estimate of 45,000-55,000 pairs or 135,000-165,000 birds, which is adopted here, especially due to the presence of over 50,000 pairs between the Banc d'Arguin and Saloum in 1999. A mid-point 1% threshold is proposed of 1,500. It is unclear whether the population is increasing or not. Certainly this estimate is higher than previous ones, which were based on counts from only a limited number of sites. However, the population is not in decline, and it would be safe to assume that it is either stable or increasing. The type of estimate proposed is 2, as there have been no complete simultaneous surveys of the breeding colonies in all relevant countries.

***Sterna bengalensis*, Lesser Crested-Tern**

The exact population/race status of non-breeding birds in Africa is not entirely clear.

Population *bengalensis*, Gulf, S Asia (breeding)
This population reaches Madagascar and Seychelles, and probably to the eastern seaboard of Africa as far south as South Africa. 2523 have been recorded at the Mahavavy Delta wetlands, 3200 at Tambohorano wetlands, 3300 at the Mangoky Delta and 5000 at Cape Amparafaka, Baly Bay National Park (Project ZICOMA 2001). The population estimate is best derived from breeding data outside of Africa.

Population *bengalensis*, Red Sea (breeding)
This is a breeding population of the red Sea from Egypt to Somalia, which reaches as far south as South Africa in its non-breeding range. Some known (past / current) breeding sites include the following:

Egypt:	500 pairs at Hurghada Archipelago, breeding also at Tiran and Zabargad islands (Baha el Din 2001)
Eritrea:	500+ pairs at Herat Island in 2000 in the Dehalak Archipelago, with possibly several thousand pairs throughout the archipelago
Djibouti:	1000+ pairs at the island Ounda Dâbali, Les Sept Frères in September 1985 (G. Magin 2001)
Somalia:	breeding known to have occurred at Ceebaad and Sacaada Din islands in northwest Somalia (Coulthard 2001), with probably <500 pairs
Saudi Arabia:	*S. bengalensis* breeds in the Farasan islands (Scott 1995), probably in low numbers
Yemen:	*S. bengalensis* may breed on islands off the northwest coast, where 1000 birds were seen in October 1979 (Scott 1995).

Based on these breeding data, resulting national population estimates have been made of 2000 pairs in Egypt, 5000 pairs in Eritrea, 1000 pairs in Djibouti, 1000 pairs in Somalia, and 1000 pairs in Saudi Arabia / Yemen, a new population estimate is proposed of 10,000 pairs (30,000 individuals).

Population *torresii*, S. Mediterranean, especially Libya (breeding)
This is essentially a breeding population of the Mediterranean, with a non-breeding range from the Mediterranean down to the West African coast, essentially as far as Guinea, with vagrants further south/east (e.g. Ghana). Around 2000 have been recorded breeding on islets off Zuwaytinah in the Gulf of Sirte, Libya (Harrison 1983), where there were 1700 pairs in 1993 on Geziret Garah, representing 95% of this population; a further 40 pairs also bred on Geziret al Elba in 1993 (Meininger & Wolf 1994). *S. bengalensis* is suspected of breeding at Kneiss in Tunisia, where it occurs in small numbers on passage (Amari & Azafzaf 2001). The Rose & Scott (1997) estimate of 4000 is based largely on the same data, and is supported here.]

***Sterna bergii*, (Greater) Crested Tern/Swift Tern**

The sub-specific status of *S. bergii* in Africa is not clear, with confusion especially concerning the race *enigma*, which some authors consider to belong to *thalassinus*.

Population *bergii*, Namibia & South Africa (breeding)
This population breeds at up to 27 localities between Swakopmund, Namibia and Seal and Stag Islands in Algoa Bay, South Africa, and regularly occurs in southern Angola and southern Mozambique but in small numbers (du Toit *et al.* 2002). There are approximately 6500 breeding pairs, with 6336 breeding in South Africa in 2000 (Crawford, in prep.). Up to 1682 pairs have nested in Namibia (Cooper *et al.* 1990). In January

1998, 221 were counted in Namibia and 668 in South Africa, though there were 820 in April 1997 in Namibia and 966 in South Africa in July 1997 (Dodman *et al.* 1999). The population is stable (du Toit *et al.* 2002).

UPDATE: Range given 15,000 – 25,000 according to Hockey et al. (2005), based on same data as others. However, Crawford (20030 illustrates high variability according to food availability; during 1987-2000, the numbers of Swift Terns breeding in South Africa's Western Cape varied between 1,449 and 5,668 pairs.

ADD TO Refs:
Crawford, R.J. 2003. Influence of Food on Numbers Breeding, Colony Size and Fidelity to Localities of Swift Terns in South Africa's Western Cape, 1987-2000. Waterbirds 26(1):44-53.

Population *thalassinus,* Seychelles, Tanzania & Chagos (breeding)
In Seychelles, *S. bergii* breeds in Aldabra (Iles Chaland, Table Ronde, Ilot Déder, Grand Mentor, Ilot Marquoix, Champignon des Os and Sesame), Cosmoledo and Etoile (Skerrett *et al.* 2001). Diamond (1971) suggests the total breeding population of Aldabra may be 150 birds, though Rocamora & Skerrett (2001) give a figure of 60-100 pairs. *S. bergii* probably also breeds on Farquhar and Providence in the Farquhar Group (Skerrett *et al.* 2001), whilst there were 6 pairs on African Banks in the Amirantes Group in 1974, though it possibly no longer breeds here (Rocamora & Skerrett 2001). The small breeding colonies are prone to disturbance. Geographically, *S. bergii* in northern Madagascar are not far from those breeding in Aldabra.

In Tanzania, *S. bergii* breeds on Latham Island, some 60km east of Dar es Salaam on the mainland. Baker & Baker (2001) give a figure of 750-1,000 birds here in 1971. More recently, Bregnballe *et al.* (1990) found 55 active nests on Latham Island in January 1988 and a different colony of 12 nests on 30 March 1988, with 220 birds recorded roosting on Latham and a further 234 along the mainland coast, also in 1988. Baker (1996) gives an estimate for Tanzania of 1,000 to 2,000 birds, though it would seem that the breeding population is <1,000. *S. bergii* also breeds on Chagos, south of the Maldives. Here, there are an estimated 60 breeding pairs / 180 birds (Symens in Sheppard & Seaward, 1999). However, it does not occur in Rodrigues (R. Safford, *in litt.*).

Adding these data yields a range of around 1,140-1,540, which is rounded to give a new population estimate of 1,100-1,600, with a 1% threshold of 14. The population may be in decline if disturbance in Seychelles is deemed to be significant, but there is not enough information at present to substantiate such information. There is also a need to verify the status of the breeding colonies on Latham Island.

UPDATE: Given as 1300 – 1700 in WPE3, 4 & 5.

Population *enigma / thalassinus (?),* Madagascar, Juan de Nova, Mozambique (?) (breeding)
In Madagascar, 2,100 pairs were breeding in the Nosy Fasy/Foty region of northwest Madagascar in 1997, and at least one colony on the south coast near Nosy Manitse with probably a few hundred pairs (F. Hawkins, *in litt.*), though Project ZICOMA (2001) give 3,200 breeding pairs for the Nosy Fasy/Foty region, apparently based on the same data, and 800 birds (non-breeding) for Nosy Manitse. ZICOMA (1999) give a population estimate for Madagascar of 8000-10,000. This population also apparently occurs in Mozambique, where breeding was reported on sandy islands in the Zambezi River estuary in the 20th Century (Stark & Sclater 1906). It is unlikely that breeding still takes place here, as there has been significant habitat alteration since. There is however a small breeding population on Juan de Nova in the Mozambique Channel, where there were at least 50 pairs in 1994 (Le Corre & Safford 2001).

In the AfWC January 1998 there were 216 *S. bergii* in the Bazarutos Archipelago, Mozambique, with 33 on Bazaruto Island, 122 on Benguera Island and 63 on Magaruque Island (Dodman *et al.*, 1999). There were 87 in Mozambique in January 1997 (Dodman *et al.* 1997). However, these terns may well belong to *thalassinus*. There are two islands north of Pemba, Mozambique, named Ibo & Matema, where terns may occur.

A population estimate of 7,000-10,000 is given and a mid-point 1% level of 85 is proposed. [7500-10,000 in WPE3]

UPDATE: Parker (2005): Breeding has recently been observed in northern Mozambique, probably <200 birds.

SUGGEST COMBINE, ACCORDING TO, EG SAFFORD & HAWKINS (2013), WITH 6,000 – 12,000.

[Population *velox*, Red Sea & NE Africa (breeding)

Del Hoyo *et al.* (1996) give a population estimate of 33,000 pairs in the Middle East, which includes birds of this migratory population and of the more sedentary population which breeds in the Arabian (Persian) Gulf and the northern Indian Ocean. In the Red Sea, the following important breeding sites may be noted:

Egypt:	Breeding has been recorded at Hurghada Archipelago (Baha el Din 2001); 152 pairs in 1999 (PERSGA 2003)
Sudan:	370 pairs in the Suakin Archipelago (Robertson 2001)
Eritrea:	Breeding has been recorded in the Dehalak Archipelago (Coulthard 2001)
Djibouti:	500+ pairs at Ounda Dâbali of Les Sept Frères archipelago in September 1985 (G. Magin, 2001).
Somalia:	Breeding has been recorded at the Ceebaad and Sacaada Diin islands in northwest Somalia (Robinson, 2001), where there may be <500 pairs.
Saudi Arabia:	ca. 3,500 pairs in the 1990s (PERSGA 2003).
Yemen:	100 birds at Kitamah and Hataban islands in October 1975, 1300 at the Aden mudflats (August), 1700 at Abdullah Gharib Lagoons (Scott 1995).

Scott (1999) gives a figure of at least 5300 breeding pairs for the Red Sea and suggests a population estimate of C. This estimate is supported here, whilst a review of the breeding status of this and other terns and gulls in the Red Sea is clearly needed.

[Population *velox*, Arabian Gulf & Indian Ocean (breeding)
Scott (1999) suggests a total population estimate of *velox* of >100,000, indicating that the earlier estimate of 40,000 for this population based on the estimate for SW Asia of Perennou *et al.* (1994) is too low. Del Hoyo *et al.* (1996) give a population estimate of 33,000 pairs in the Middle East alone. Given an estimate of C for the Red Sea / NE Africa population, this population presumably numbers in the range 50,000-150,000. [update text]]

***[Sterna sandvicensis,* Sandwich Tern**

Population *sandvicensis*, W Europe (breeding)
BirdLife International / European Bird Census Council (2000) detail breeding populations of relevant countries, resulting in a population estimate of 53000-57957 pairs (159000-174000 individuals). The main non-breeding range of this population is coastal West Africa, where this is, at times, one of most numerous terns on coastal Senegal (pers. obs.). However, non-breeding birds range quite widely down to Southern Africa. Dean (2000) reports of 1000+ birds feeding at Luanda Bay. 1164 were recorded in coastal Namibia in January 1998 (Dodman *et al.* 1999).

Population *sandvicensis*, Black Sea (breeding)
BirdLife International / European Bird Census Council (2000) detail breeding populations of relevant countries, resulting in a population estimate of14500 - 23653 pairs (x3, 43500 - 71000 individuals). This population reaches coastal North and East Africa in the non-breeding season, though it is rare in Kenya and Tanzania.]]

***Sterna dougallii,* Roseate Tern**

The sub-specific status of roseate terns is not clear, especially in the Indian Ocean. Sometimes birds of East Africa are included in *arideensis*, described from Seychelles, whilst other authors include *arideensis* in *bangsi*. The status of birds in Madagascar is far from clear. No attempt is made here to review the sub-specific status of roseate terns, and it is likely that there will be changes in the population definitions given below.

Population *dougallii*, South Africa (breeding)
This small population breeds in the Algoa Bay islands, Eastern Cape Province, South Africa, the vast majority on the 19ha. Bird Island, with two tiny outliers on St Croix Islands (also in Algoa Bay) and on Dyer Island, Western Cape, and totals around 250 pairs (du Toit *et al.* 2002). There are past breeding records from other sites in the Cape, including Cape Recife in Algoa Bay; the breeding site on Dyer Island was abandoned between 1971 and about 1996, when one bird was found again on a nest (Crawford in Harrison *et al.* 1997), though the breeding attempt failed, probably due to disturbance (Barnes *et al.* 2001). Some ten/twelve pairs are now re-established on Dyer Island (Tree & Klages, in press). Roseate tern may have been more numerous in South Africa in the first half of the 20th Century, but in the last thirty years at least, the population has been increasing, currently standing at around 250 pairs (Tree & Klages in press). Barnes *et al.* (2001) give a figure of 180 pairs at the Algoa Bay islands, though there are presumably around 240 pairs here now, assuming the population estimate of 250 pairs given by du Toit *et al.* (2002) and Tree & Klages (in press) is correct. A new population estimate of 750 is given based on du Toit *et al.* (2002).

The movements of birds after breeding are poorly known. However, Tree & Klages (in press) consider that there may be a close link between roseate terns in South Africa and Madagascar; only in East Africa, Madagascar and South Africa do birds lay mainly in July/August, whilst Malagasy birds are larger than their more northern congeners.

UPDATE:
ADD TO REFS:
Tree, A.J. and Klages, N.T.W. 2003. Status, biometrics, moult and possible relationships of the South African population of Roseate Tern. Ostrich 74 (1 and 2): 74–80.
& Tree 2005 (see below).

Include Moz & Tz
New estimate:
SA: 250 – 800 based on Tree (2005) and covering fluctuating population size from 2000 – 2004.

MIN. 2003. 70-75 (Algoa) + 7 (Dyer) + 60 (Moz) + 150 (Mafia) = 300 x 3 = 900 , downed to 700 (less Moz)
MAX. 2000. 250-260 (SA), 0 (Mz), 0 (Mafia), but allow up to 700 (Zanzibar) = 950 x 3 = 2850 upped to 3000.

Population *dougallii*, East Africa (breeding)
This population breeds at a few sites on the coast of East Africa, namely:

- Bajan Islands, Southern Somalia, where its current status is unknown
- Kiunga Islands, north Kenya coast, where there were 1195 pairs in 1961 (Fogden 1964) and 5000+ pairs at Mlango wa Hindi in August 1970 (Britton & Brown 1971)
- Whale Island, near Mida Creek, mid Kenya coast, where there were 1500 pairs in 1967 (Britton & Brown 1971)
- Kisite Island, south Kenya coast, where there are up to 1000 pairs (Lewis & Pomeroy 1989), with 400 adults and about 100 young in October 1997 (F. Ng'weno *in litt.*)
- Zanzibar (two islets off the southern tip of Chumbe), Tanzania, where there were 750 in 1994 (Baker & Baker 2001)
- Coastal Tanzania, where it has bred at several sites including (islets of) Mafia Island in 1978 (Britton 1980) and islets off Dar es Salaam Harbour in the 1960s; there is also a non-breeding count of 3000 from the Dar es Salaam coast in 1995 (Baker & Baker 2001).

Given the apparently irregular use of several different breeding sites and fluctuating numbers at all or most sites, it would seem that this population uses a network of coastal breeding sites, as do some tern species in West Africa, such as *S. maxima*. As such, it is quite hard to make a reliable population estimate, especially as some of the breeding sites are difficult to visit, and as there is little breeding information from recent years (e.g. the 1990s).

Cooper *et al.* (1984) estimated over 8,500 pairs for coastal East Africa. This estimate is supported, though the type of estimate is reduced from 1 to 2, given the unclear breeding status, especially in southern Somalia. The trend is unknown. The non-breeding range is likely to be the eastern seaboard of Africa, down to South Africa and the Indian Ocean, but this is not clear; certainly some birds are present throughout the year on the Kenyan and Tanzanian coasts. Du Toit *et al.* (2002) state that migration between breeding colonies situated along the East African seaboard and South Africa is strongly suspected but not proven.

UPDATE:
Madagascar: 2500 pairs = 7500
[update text]

[Population *dougallii*, West Europe & Azores (breeding)
BirdLife International / European Bird Census Council (2000) give a European breeding population 1600-1800 pairs (4800-5400 individuals), where the most important breeding area is the Azores. This population has suffered serious declines in recent years. Its main non-breeding area is the West African coast, where quite large numbers have been recorded in Ghana. These include counts of 500 at Densu Delta and 650 at Songhor Lagoon (Ntiamoa-Baidu *et al.*, 2001).]

Population *arideensis,* Seychelles, Madagascar (?), Cargados Carajos, Chagos (?) (breeding)

In Seychelles, this is a breeding bird of the granitic islands, with the main colony being on Aride, where it breeds between May and August. There have been fluctuations in the breeding population on Aride between 1973 and 1999, with a general decline noted (as detailed by Skerrett *et al.* 2001), and a current estimate of 1250 breeding pairs (Bowler & Hunter 1999). Elsewhere in Seychelles, there are about 150 pairs each on African Banks and Etoile in the Amirantes, and it may also breed at Goëlettes, Farquhar and on Bancs du Providence, whilst it has disappeared as a breeding bird from a number of other islands (Skerrett *et al.* 2001).

In Madagascar, F. Hawkins (*in litt.*) reports that at least 1,480 pairs were present in the Iles Barren complex of western Madagascar on a breeding island in 1998, and a further 500 birds not yet breeding but in breeding coloration on a potential site on Nosy Faty in the Cape Anorontany Archipelago of northern Madagascar in 1997; there were also about 1000 individuals in the area of Ile Sainte Marie in June 1999, where there are potential breeding sites. A roost of 883 birds has been counted at Nosy Vao in the Tambohorano wetlands, presumably emanating from the Iles Barren complex, where the main breeding site is Nosy Mavony (with 1400 out of 1480 pairs); there were some 2000 pairs here in 1982 (Project ZICOMA 2001), so there is a possibility of population decline, as in Seychelles. In the 1940s a colony of >4000 pairs was present on Nosy Manitse off southwest Madagascar, though the current status of this colony is unknown; it may be affected by the presence of fishermen's camps (Project ZICOMA 2001). In the absence of further information, it is assumed that breeding still occurs here, but, given declines in this population elsewhere, a more conservative estimate of <1000 pairs is assumed.

However, birds from Madagascar may not belong to *arideensis*, and Tree & Klages (in press) consider they may have close links with *dougallii* in South Africa. For the time being they are included in this population, pending a thorough survey of the sub-specific status of roseate terns in the Indian Ocean.

There are also some 400 pairs on the Cargados Carajos shoals (Saint Brandon), isolated islets of the Republic of Mauritius (Safford 2001), though breeding no longer occurs on (islets off) Rodrigues (R. Safford, *in litt.*).

Roseate terns also breed on Chagos, which are included here (though it is possible they may belong to race *bangsi* or *korustes*). There are some 20 breeding pairs (60 birds) here, with 5 pairs in Diego Garcia, 8 pairs on Peros Banhos, 2 pairs on Coin de Mire and 5 pairs on Salomon (Symens in Sheppard & Seaward 1999).

Cooper *et al.* (1984) estimated 4,100 pairs in Madagascar, based largely on an estimate of 4,000 pairs from Nosy Manitse. A new population estimate is proposed, with around 4,520 pairs based on 1,550 pairs in Seychelles, about 2,500 pairs in Madagascar, 400 pairs on Cargados Carajos and 20 pairs on Chagos. Given some uncertainties, this is given as a range of 4,000-5,000 pairs or 12,000-15,000 birds. The trend is declining in Seychelles and would also appear to be declining in Madagascar (judging by apparent declines at Iles Barren). An overall trend of declining is thus given. The population is in need of review, especially the status of breeding at Nosy Manitse.

Less Madagascar = 1500 – 2500 pairs = 4500-7500
+ Kenya & Somalia: 3000-5000prs = 9000 – 15000
= 14500 – 22500

ADD TO REFS:
TREE, A.J. 2005. The known history and movements of the Roseate Tern Sterna dougallii in South Africa and the western Indian Ocean. Marine Ornithology 33: 41-47
[update text]

***Sterna vittata,* Antarctic Tern**

Population *vittata,* Subantarctic Islands
The nominate population breeds in the subantarctic, mainly in the Kerguelen, Crozet and Prince Edward Islands. Some of the known colonies are at:

Prince Edward Islands:	50 pairs breed on the islands of Prince Edward and Marion (Barnes *et al.* 2001)
Kerguelen:	Breeds on the Courbet peninsula, where quantitative data are lacking (Catard 2001)
Heard Island:	Breeding status is in need of confirmation.

Thibault & Guyst (1993) give a total population estimate of 3,000-6,000. Given a general lack of recent information, this estimate is supported, but the type of estimate is downgraded to 2, as updated surveys are required in order to have a high degree of confidence.

UPDATE: CHECK SANTPAULII IN TREE & KLAGES (2004). … 1200 DEC [update text]

Population *tristranensis,* Tristan da Cunha, Gough Island, Amsterdam & Saint Paul (breeding)
There were 50-70 pairs on Tristan Island and 100-400 pairs in the Nightingale Island group in 1974, 86+ pairs on Inaccessible Island in 1983 and 500 pairs on Gough Island in 1993 (Rowlands 2001). This gives a population estimate of 736-1,056 pairs or 2,208-3,168 for the Tristan group. This population also occurs on Iles Saint Paul and Amsterdam; there were 200 pairs on Saint Paul in 1996 (Catard 2001).

The Rose & Scott (1997) estimate of 2,500 based on Croxall *et al.* (1984) would appear to be slightly too low. A new population estimate is given of 2,600-3,800, this range perhaps better reflecting the somewhat uncertain status of the population, given that some data date back to the 1970s. A new mid-point 1% level of 32 is proposed. The presumed non-breeding range is from the mid-South Atlantic Ocean to the subtropical zone of the Indian Ocean, including the coasts of South Africa. It is a 'fairly common' visitor in the southern winter to the coastal waters of the Cape, vagrant to Natal and Namibia (Sinclair *et al.*, 1993).

MADE UPDATE FOR WPE4 BASED ON TREE & KLAGES (2004); CHECK IF THIS IS ALREADY IN REFS. 2400 – 4500 STA [update text]

[Population *georgiae,* South Georgia Is, S Orkney, S Sandwich & Bouvetøya? (breeding)
This population essentially occurs in the subantarctic of the Neotropics, with breeding colonies in South Georgia, South Orkney and South Sandwich islands. However, the small, uninhabited island of Bouvet (or Bouvetøya) is closer to Africa, lying some 2,600km southwest of South Africa. *S. vittata* has been recorded breeding here, though there are no recent confirmed breeding records (Huyser 2001).]

***[Sterna virgata,* Kerguelen Tern**

There is one population, *virgata*, restricted to the subantarctic islands southeast of Africa. It breeds on the following islands:

Crozet:	38 pairs bred on Ile de la Possession and 110 pairs on Ile de l'Est in 1984, also occurring on Ile des Pingouins and Ile des Apôtres (Catard 2001)
Kerguelen:	Breeds on the Iles Nuageuses and Iles Clugny and on the southern coast of the Jeanne d'Arc peninsula in small numbers, on the Courbet, Loranchet and Rallier du Baty peninsulas, and in the island group of Foch, Saint Lanne Gramont and Howe and the islands of the Golfe du Morbihan, though quantitative data from the latter two island groups is lacking (Catard 2001)
Prince Edward Islands:	35 pairs on the islands of Prince Edward and Marion (Barnes *et al.* 2001).

Thibault & Guyst (1993) give a total population estimate of 3,500-6,500. Given a general lack of more recent information, this estimate is supported, but the type of estimate is downgraded to 2, as updated surveys are required in order to have a high degree of confidence in the estimate. It is certainly not easy to monitor this species, which breeds in relatively small numbers in island groups that support, overall, some of the greatest seabird colonies in the world.]

***[Sterna sumatrana,* Black-naped Tern**

Population *mathewsi,* Aldabra, Farquhar and Amirantes Groups (Seychelles), Chagos & Maldives
There are about 70 pairs on Aldabra (Betts 2002), 50-100 pairs on Cosmoledo, about 10 pairs on African Banks in the Amirantes and 10-30 pairs on islets of Farquhar atoll, including Goëlettes (Rocamora & Skerrett 2001), whilst breeding also occurs on St Joseph Atoll in the Amirantes and Bancs Providence in the Farquhar Group (Skerrett *et al.* 2001). The total breeding population in Seychelles (and Africa) would thus appear to be in the order of 150-250 pairs (450-750 birds). At Aldabra the population would appear to be stable.

This population also breeds on Chagos, where Symens in Sheppard & Seaward (1999) recorded 34 breeding pairs (102 individuals) from six islands. This population also breeds in the Maldives.

This results in a population estimate for Africa-related islands (Seychelles and Chagos) of 180-300 pairs or 540-900 individuals based on 150-250 pairs in Seychelles and 30-50 pairs in Chagos.]

***Sterna hirundo,* Common Tern**

Population *hirundo*, W Africa (breeding)
Rose & Scott (1997) provide an estimate of 1200 birds for West Africa, based on Croxall *et al.* (1984). The main breeding sites are at:

- The Banc d'Arguin in Mauritania, where there were about 200 pairs in 1974 (Trotignan 1976) and 100 pairs in 1984 (PNBA 1988);
- Saloum Delta, where Keijl *et al.* (2001) counted 45 pairs at Ile Senghor and 25 pairs at Ile aux Oiseaux in 1998;
- The Casamance, Senegal;
- Southwest Morocco;
- Bijagós Archipelago, Guinea-Bissau;
- Dodo River mouth, Niger Delta, Nigeria;
- Ogooué River, Gabon.

Breeding has also taken place in Libya, though there do not appear to be any recent records. These records may not relate to this population.

Keijl *et al.* (2001) give an estimate of 200 pairs for Northwest Africa to Guinea-Bissau. NEED NEW DATA FROM NIGERIA & GABON. The current population estimate of 1200 is retained. The population is probably stable, though there are ongoing threats at some breeding sites, including egg collection by fishermen.

Population *hirundo*, S, W Europe (breeding)
This population estimate should be based on breeding data from Europe, as non-breeding birds may not be distinguished from other populations that also occur in Africa. The main non-breeding range of this population is the western seaboard of Africa. Common terns in Namibia are presumably a part of this population, as opposed to those from North and East Europe, which also reach Southern Africa.

Population *hirundo*, N, E Europe (breeding)
This population estimate should be based on breeding data from Europe, as non-breeding birds may not be distinguished from other populations that also occur in Africa. This population reaches Southern Africa in its non-breeding period. 2902 were recorded in Tanzania, 5228 in Mozambique and 4237 in South Africa in January 1998 (Dodman *et al.* 1999).

Population *hirundo*, Western Asia (breeding)
Common terns in Seychelles, where this species is annual in small numbers from October to April (Skerrett *et al.* 2001), are presumably from this population, but the situation is not clear. It is more appropriate to base the population estimate on breeding data from Western Asia.

Population *tibetana*, Mongolia, Kashmir, Tibet (breeding)
This race reaches Eastern Africa, and possibly Seychelles. Britton (1980) reports that this race has occurred in Malawi and reaches the Natal (South Africa) coast in numbers.

***[Sterna paradisaea,* Arctic Tern**

Population *paradisaea*
This tern breeds widely in the Arctic and further south to northern Europe, migrating annually as far as the Antarctic. It thus has a wide distribution along African coasts, though it is often difficult to distinguish it at sea from other non-breeding *Sterna* terns, notably *S. hirundo*. The population estimate is best derived from breeding data.]

***Sterna albifrons,* Little Tern**

[Population *albifrons*, W Europe & NW Africa (breeding)
BirdLife International / European Bird Census Council (2000) provide an estimate of 28,000-50,000 pairs (= 84,000-150,000 individuals) for Europe, which includes this and the East European breeding population. Small numbers of this population also breed in NW Africa, probably in the low hundreds, which would not cause significant change to this estimate. This population occurs along the entire West African seaboard.

Population *albifrons*, E Europe (breeding)

This population reaches Eastern Africa as a non-breeding visitor, where it is generally difficult to distinguish from the more numerous Saunders's (Little) Tern *Sterna saundersii*. There are generally few records from Kenya and Tanzania in AfWC reports, though records in the 20s in AfWC reports from Eritrea and Ethiopia. It would appear that this population is more numerous in Africa along the Red Sea. There are also records from east Democratic Republic of Congo, where minima of 600 were recorded at Lulimbi, Virunga in October 1992, 800 in April 1993 and 200 in October 1993, representing the species' furthest inland records in Central Africa (Demey *et al.* 2000). However, it is much more appropriate in this case to base the population estimate on breeding data from Europe, for which Snow & Perrins (1998) is the basis for the Rose & Scott (1997) estimate of 70,000-120,000 birds.

Population *albifrons*, SW Asia (breeding)
The non-breeding range of this population is the Arabian Gulf and Indian Ocean. Little tern is at least a vagrant in Seychelles, but could be more frequent than known, due to confusion with Saunders's (Little) Tern *Sterna saundersii*. As in the Eastern European / Black Sea / Mediterranean population, it is much more appropriate to base the population estimate on breeding data.

In the Chagos Archipelago of the Indian Ocean, Symens (1999) recorded four nests of *S. albifrons* on an exposed sand bank of the inner lagoon of East Island off Diego Garcia, and several roosting flocks, intermixed with *S. saundersii*, at Peros Banhos and the Salomons. The breeding status of little tern in the Indian Ocean is in need of further investigation.]

[Population *guineae,* West Africa (breeding)
This rather widespread population occurs along the whole West African coast and also inland along the Niger River. It breeds in coastal Mauritania, Senegal, Ghana, Nigeria and Cameroon, and inland along the Niger River and tributaries, Lake Chad and the Ogooué River, Gabon (Borrow & Demey 2001). Keijl *et al.* (2001) suggest that there are 100 pairs in Mauritania and Senegal, where the main breeding sites are Guembeul and Langue de Barbarie, both in the Senegal River Delta area, with some 70-85 nests between them. In Mauritania, PNBA (1988) recorded 30 breeding pairs at the Banc d'Arguin in 1984-1985, consistent with a figure of 25-50 pairs in 1974 (Trotignon *et al.* 1976). Harrison (1983) suggests that *albifrons* may breed as far south as Mauritania, though it is assumed here that Mauritanian breeding birds belong to *guineae*.

In Ghana, *S. albifrons* breeds regularly at the Densu Delta, where up to 3,100 have been recorded non-breeding, and at Sakumo Lagoon, whilst 1,000 have been recorded at Keta Lagoon and 2,750 at Songor, both sites of the Volta River estuary (Ntiamoa-Baidu *et al.* 2001). 6,099 little terns were recorded in the January 1998 AfWC in coastal West Africa (Dodman *et al.* 1999). Most of these high counts of non-breeding birds are likely to constitute largely of the West European breeding population of sub-species *albifrons*. However, AfWC counts along the Ghanaian coast in July also produce reasonable numbers of this species, with 570 in 1996 (Dodman *et al.* 1997), 1,277 in 1997 (Dodman *et al.* 1999) and 1,875 in 1998, when there were 808 at Densu Delta and 764 at Songhor Lagoon (Dodman *et al.*, in prep.). Some of these may relate to non-breeding (first-year?) *albifrons*, though it is expected that the majority are likely to be *guineae*. Certainly, movements of *S. albifrons* are unclear; Harrison (1983) mentions a bird ringed in Java and recovered in Ghana. A few pairs breed at the Ogooué River in Gabon (Christy 2001), though estimates of breeding pairs are not currently available for Nigeria and Chad.

Based on probable populations of 100-120 pairs in Senegal/Mauritania, some 400 pairs in Ghana and <300 pairs elsewhere, a new population estimate is proposed of 2,000-3,000, with a 1% level of 25. However, this should only be applied in the breeding season, as this population is augmented by much larger numbers of *albifrons* in the northern winter. This population estimate may be revised, when more accurate data is available for breeding colonies in the Gulf of Guinea and inland.]

***Sterna saundersii,* Saunders's (Little) Tern**

Population *saundersii,* Red Sea, Persian Gulf & West Indian Ocean
As mentioned in the text for *S. albifrons*, there is some confusion as to the specific status of small terns in Eastern Africa and the Indian Ocean. This population has a wide breeding range from the Red Sea to islands of South Somalia, the Saudi and Omani coasts and the Persian Gulf to NW India. It disperses quite widely into the Indian Ocean, in Africa reaching Tanzania and Madagascar. It is rather difficult for non-breeding data from Africa to contribute to the population estimate due to identification uncertainties, and the current status of breeding colonies associated with Africa is unclear.

However, there are quite large non-breeding groups at some coastal sites. In February 1995 5,719 were recorded at Marine Park Beach Malindi and 900 at the Sabaki River mouth, Kenya (Bennun & Njoroge 1999;

Dodman & Taylor 1995), whilst in January 1998, 2,514 were recorded in Tanzania, including 1,274 in NE Zanzibar (Dodman *et al.* 1999). Bregnballe *et al.* (1990) counted 5,200 along the Tanzania mainland coast and 3,000 along the SE coast of Zanzibar in 1998/89. Baker (1996) estimates 10,000-15,000 birds to occur in Tanzania. This tern is present in Seychelles from September to April, with a count of 800 in October 1997 from Aldabra (Betts 2002).

Symens (1999) found small numbers of *S. saundersii* at Peros Banhos and the Salomons in the Chagos Archipelago in February-March1996.

The current population estimate of 40,000 in Rose & Scott (1997) could be on the low side, if there are other high counts from Asia and the Indian Ocean, comparable to the counts given here from Kenya.

***Sterna balaenarum,* Damara Tern**

There is one population, *balaenarum*, which is an endemic breeding bird of Southwest Africa, especially Namibia, moving northwards along the Central African coast to West Africa, where there are records from as far west as Sierra Leone and Liberia. The record of 40 at Yawri Bay, Sierra Leone in 1994 constituted a significant westward extension of its global range (Okoni-Williams *et al.* 2001). It is a common migrant from May-August in Angola (Dean 2000). The breeding population is quite well known in Namibia and South Africa, though there may be breeding birds in coastal Angola, where an adult in breeding plumage has been seen (in December) carrying fish and feeding young at Cunene Mouth (Dean 2000). The Damara tern is found especially along the desert coast, in dune fields and dune slacks and also at saltpans (Simmons *et al.* 1998). The current estimate of 13,500 birds is supported, (though this might feasibly increase if more breeding birds are found in Angola). Du Toit *et al.* (2002) indicate that there are stable population numbers in Namibia, though some decline is known in South Africa (from 150 to 120 pairs between about 1980 and 2000). Overall, the population appears to be stable, though it needs careful monitoring at its breeding locations, where it may be prone to disturbance.

***Sterna repressa,* White-cheeked Tern**

There is one population, *repressa*, which occurs from the Red Sea along the East African coast to Kenya, being less common further south, though stragglers reach Natal, South Africa (Harrison 1983). Eastwards, the distribution continues to the Persian Gulf and West India. In Kenya, up to 1000 pairs breed on the Kiunga Islands (July-September), but it is rather local elsewhere, with a record of 1400 at Sabaki in June 1975 being exceptional (Britton 1980). There are also breeding records from the Bajan Islands in south Somalia and several hundred at Jasiira Ceebaad and Jasiira Sacaada Din in northwest Somalia (Robertson 2001) and in the Dehalak Archipelago of Eritrea (Coulthard 2001). In Sudan, white-cheeked tern breeds at Mukawwar (site includes islets of Mukawwar, Mayetib and Taila) and the Suakin Archipelago (Robertson 2001). There are also 1500+ pairs at Egypt's Hurghada Archipelago, with lower numbers at Tiran, Zabargad and Siyal islands (Baha el Din 2001).

Fishpool & Evans (2001) estimate that the African breeding birds account for about half the population, whilst Rose & Scott (1997) provide an estimate of 600,000 birds. This would leave approximately 300,000 birds or 100,000 breeding pairs in Africa. Given that there are very few sites meeting the IBA Africa threshold of 3,000, it is suggested that this figure is somewhat high. A more conservative estimate of C (25,000-100,000) is estimated for Africa, but more information is needed from the Middle East and Asia before a new population estimate can be proposed.

***Sterna anaethetus,* Bridled Tern**

Population *melanoptera*, Gulf of Guinea Islands & West Africa

This population centres on the Gulf of Guinea Islands of the countries of São Tomé and Príncipe and Equatorial Guinea, but there is also a breeding colony at Mauritania's Banc d'Arguin and relatively recent small numbers in Senegal. It is presumed that all form part of the same population.

In São Tomé the breeding site is Sete Pedras (Borrow & Demey 2001), though Christy (2001) states that breeding status at Tinhosas islands is unclear. At Annobón or Pagalu, there are 200 pairs (Pérez del Val 2001). In Senegal, there are 1-2 pairs regularly at Iles de la Madelaine (pers. obs.), whilst there have also been breeding attempts at Langue de Barbarie. At the Banc d'Arguin, de Naurois reported some 1200-1800 pairs between 1959-1965, though by 1995 only 100 pairs were found (Gowthorpe *et al.* 1995). PNBA (1988) reported 440 pairs breeding from May to July 1984.

The Rose & Scott (1997) estimate of 4,500 based on Croxall *et al.* (1984) would now appear to be too high, with a population decline apparent due to significant decreases at the Banc d'Arguin. A new estimate is proposed of 1500, based on 200 pairs at Annobón, about 200 at the Banc d'Arguin, with <100 elsewhere. The possibility of small overlooked breeding colonies elsewhere in West Africa should not be over-ruled.

ACTION: CHECK IN BIRDS OF MAURITANIA & FOR ANY ST UPDATES.

Population *antarctica*, Indian Ocean islands, Kenya coast
Breeding birds of the Kenya coast are thought to be of this population. A bird ringed in Seychelles was recovered from Pemba (Britton 1980), indicating at least some movement between the East African coast and the Indian Ocean islands. Britton (1980) gives 750 pairs for the Lamu Archipelago (Kiunga), with breeding in July-August each year. This species also breeds in some years at Whale Island in the Watamu Marine National Park (Bennun & Njoroge 1999). There are old breeding records from the Bajan islands of southern Somalia (Robertson 2001), in need of confirmation.

In Seychelles, this species breeds in the granitic islands, with 600 pairs on Cousin (Burger *et al.* 2000), about 100 pairs on Aride, 1,000 pairs on Récif, with breeding records also from Cousine, Zavé, Booby, Mammelles and Bird Island (Skerrett *et al.* 2001). Bridled tern is common in the Amirantes, though there are no breeding records (Skerrett *et al.* 2001), whilst it still breeds on rat-free islets of Cosmoledo (Mortimer & Constance 2000). Skerrett (2001) also reports of old colonies on Farquhar and Providence, and declines noted at Aride (from >1000 pairs in 1988 to <100 pairs in 1997). About 100 pairs breed on Nosy Mavony of the Iles Barren, west Madagascar (Project ZICOMA 2001). There are no IBAs in Madagascar that surpass the 1% IBA Africa threshold of 5000. There are no breeding colonies in the Mascarenes (R. Safford, pers. comm.), whilst breeding status in the Iles Eparses in unclear. Breeding does occur however in the Maldives (Zuhair 1997).

It would thus seem that the Africa population (Kenya, Seychelles, Madagascar, Iles Eparses) could well be much lower than the total population estimate of 500,000 given by Rose & Scott (1997), which is based on Croxall *et al.* (1984). The Africa breeding component of this population is expected to be in the range B (10,000-25,000), and could well be in decline, as it is at Aride. On Chagos, there are only some 60 breeding birds on Great Chagos Bank, though there is no data for Egmont (Sheppard & Topp, undated).

Population *fuligula*, Red Sea, Persian Gulf, Arabian Sea, W India
Rose & Scott (1997) give a population estimate of 150,000, based on Croxall *et al.* (1984). In Africa, this population breeds in the Red Sea, notably at:

- Hurghada Archipelago and Zabargad Island in Egypt (Baha el Din 2001);
- Dehalak Archipelago, Eritrea, where 950 birds were recorded in 1962 in the Dehalak Group, whilst it also almost certainly breeds in the Asseb islands; non-breeding groups up to 2000 have also been recorded on the coast at Massawa (Coulthard 2001);
- Jasiira Ceebaad and Jasiira Sacaada Din, northwest Somalia, where 100,000+ have been recorded (Archer & Godman 1937; 1961), but there is a need to confirm the present situation;
- Jasiira Maydh, northern Somalia, where they were present in large numbers (North 1946); this is again in need of confirmation;
- Mukawwar island and Suakin Archipelago in Sudan (Robertson 2001), where there are probably <1000.

If the current estimate is of the right order, then there have presumably been major declines since the 1940s at the main breeding colonies in northern Somalia. There is not sufficient information available at the time of writing to warrant changing the population estimate. However, it is suggested that the type of estimate is downgraded to 2, as the current breeding status at the key sites in northern Somalia is surely not well known.

***Sterna fuscata,* Sooty Tern**

Population *fuscata*, South Atlantic and Gulf of Guinea islands (breeding)
This population occurs widely in the non-breeding season along the West African coast from Mauritania to Cameroon, with breeding occurring in the Gulf of Guinea Islands. Further south, it also breeds on Ascension Island and Saint Helena.

There is a large colony of around 100,000 pairs on the Tinhosas islands of Príncipe (Christy 2001). Breeding has also been recorded in small numbers in the Sine Saloum delta and Langue de Barbarie of Senegal, where current breeding status is uncertain. No more than a few pairs ever seem to breed here.

At Ascension, there were 194,000 pairs in 1997, with the main colonies found in the southwest of the island, occupying 9.14ha (Rowlands 2001). Breeding also occurs on the very small Boatswainbird Island just off Ascension and in northeast and southwest Saint Helena (Rowlands 2001).

Rose & Scott (1997) give a population estimate of 40,000, based on Croxall *et al.* (1984). This would appear to be far too low. A new population estimate is proposed of 300,000 pairs (900,000 individuals), with a 1% level of 9000.

UPDATE.
Valle et al. (2014): 160,000 pairs (given as 416,000 birds) in Tinhosas, February 2013. However, no updates from other main colonies; overall estimate presented as a range: 300,000 pairs – 350,000 pairs = 900,000 -

ADD TO REFS:
Valle, S., Barros, N, & Wanless, R.M. 2014. Status and trends of the seabirds breeding at Tinhosa Grande Island, São Tomé e Príncipe. BirdLife International, Cambridge.

Population *nubilosa,* Gulf of Aden, Coastal E Africa, Indian Ocean - Madagascar - Andaman Is; Philippines - S Japan (breeding)
There are several races of *S. fuscata*, and the sub-specific status of birds in the Indian Ocean is not entirely clear. Harrison (1983) ascribes birds breeding on Jasiira Maydh (Mait Island), northern Somalia to sub-species *somaliensis*, whilst birds breeding here and in Seychelles have also been described as *fuscata*. However, there would seem to be a more general agreement that all birds from the Red Sea / Gulf of Aden, throughout the Indian Ocean and as far as South Japan in the north Pacific Ocean all belong to subspecies *nubilosa*.

There may well be more than one population of *nubilosa*. Here, a summary is presented only of those birds occurring in the Southern Indian Ocean and the Gulf of Aden / Red Sea.

There is no recent breeding information from Jasiira Maydh of northern Somalia, and the post-breeding movements of this colony are not clear.
There is a large breeding population in Seychelles, where it is the most common seabird. Skerrett *et al.* (2001) list the main breeding sites, giving approximate number of breeding pairs, summarised below:

Bird Island:	700,000
Aride:	360,000
Récif:	10,000
L'Ilot Frégate:	1,000
African Banks:	5,000-10,000
Desnoeufs:	500,000
Etoile:	5,000
Goëlettes (Farquhar):	260,000
Grand Ile/Wizard (Cosmoledo):	1,100,000
Ile Sèche:	1,000

This results in a population in Seychelles of some 2,950,000 pairs or 8,850,000 individuals.

In Madagascar, 2000 pairs were recorded on Nosy Fasy in July 1997, with a further 30 pairs on Nosy Foty, both islands in the Cape Anorontany archipelago (Project ZICOMA 2001). There are also 100,000 pairs on Iles du Lys in the Glorieuses Archipelago, 100,000 pairs also on Juan de Nova and 500,000-1,000,000 pairs on the coralline island of Europa in the Mozambique Channel (Le Corre & Safford 2001). A further 250,000-500,000 pairs breed on Serpent Island, just north of Mauritius, 20,000 pairs in the Cargados Carajos shoals, whilst some 150 pairs were recorded in the Cocos and Sables islets of Rodrigues in 1998 (Safford 2001). This results in an additional number of around 1,500,000 pairs or 4,500,000 birds.

In East Africa, *S. fuscata* breeds in the Bajan Islands, southern Somalia, Kisite Island, southern Kenya, where there were around 20 pairs in 1997 (F. Ng'weno, *in litt.*) and on Latham Island, Tanzania, where there were 25,000-35,000 birds in 1989 (Baker & Baker 2001).

Sooty tern also breeds in the Iles Eparses on Europa and Glorieuses and in the Southern Indian Ocean at St. Paul's / Amsterdam islands (Poillot & Salamolard 1999), but no numbers are available.

A total population estimate for the Southern Indian Ocean and African coasts is thus given as 13,500,000 birds. There is in addition a breeding population on Chagos of some 68,500 birds, with 52,000 on Great Chagos Bank and 16,500 on Peros Banhos (Sheppard & Topp, undated); this represents a total of 102,750 individuals on Chagos.

***[Chlidonias hybridus,* Whiskered Tern**

Population *hybridus*, W Europe, W Mediterranean (breeding)
BirdLife International / European Bird Census Council (2000) provide a population estimate of the European breeding population (both populations combined) of 35000-52000 pairs (x3, 95000-156000 individuals). Rose & Scott (1997) give an estimate for this population of 20,000-30,000, based on the BirdLife International/European Birds Census Council, European Birds Database, accessed in 1994. The current estimate may therefore need to be increased slightly to take account of this latest estimate. The main non-breeding area of this population is West Africa, where it is particularly numerous in Mali's Inner Niger Delta, where there were 4511 in January 1998 (Dodman *et al.* 1999) and 4494 in January 1999 (Dodman *et al.* in prep). Brouwer & Mullié (2001) give an average population estimate from 1994-1997 in Niger of 1127 birds. At present, coverage of the AfWC in West and Central Africa is not sufficient to improve the current estimate, which is best based on breeding information in Western Europe and the Mediterranean.

Algeria: 200 pairs

Population *hybridus*, E Europe, E Mediterranean (breeding)
The Rose & Scott (1997) estimate of 50,000-80,000 may need to be increased to take account of the more recent estimate of the European breeding population. The main non-breeding range of this population is in the East Mediterranean and down to Northeast Africa.

Population *delalandii,* Kenya and Tanzania (breeding)
Fishpool & Evans (2001) give a population estimate of B (10,000-25,000) for *C. hybridus* breeding in Africa and a 1% threshold of 150 birds. Sometimes, this is treated as one population, *sclateri*, but it seems appropriate to consider the East African breeders as a separate population, *delalandii*. There is a gap in breeding range between *delalandii* in northern Tanzania and *sclateri* in Southern Africa. In East Africa, *C. hybridus* breeds at Lake Naivasha, Kenya and in Tanzania south to Dodoma (Britton 1980). In the northern winter, numbers are augmented by *hybridus* from Eastern Europe and the Mediterranean. A count of 1,450 at Tana River Delta in 1993 (Bennun & Njoroge 1999) is especially high, as *hybridus* is thought to reach only as far south as northern Kenya.

Zimmerman *et al.* (1996) describe this as a local resident, breeding opportunistically in small colonies. Baker (1996) estimated the Tanzania population as close to but probably not reaching 10,000 birds. More recently, in November 2000, N. Baker (*in litt.*) counted 400+ in one bay of Lake Segara in Western Tanzania, which could have indicated in the low thousands for this lake alone. Although only three definite breeding sites are known in Tanzania, there are several probable sites and many other possible sites, such that there are most certainly >5,000 birds in Tanzania (N. Baker, *in litt.*). There were 4,557 counted in January 1995 (N. Baker, *in litt.*), when there were also 1,178 in Kenya, though only 4 in Uganda (Dodman & Taylor 1995). A population estimate of 10,000-15,000 is thus proposed, with a 1% level of 125.

Population *sclateri,* Southern Africa and Madagascar (breeding)
In Southern Africa, this is a widespread bird of freshwater wetlands. There were 1,702 recorded in the sub-region in July 1997, with 1,231 in Zambia, though only 281 were recorded in January 1998 (Dodman *et al.* 1999), this count coinciding with the breeding season. In Zambia, this species is only known to breed at the Liuwa Plains in the west of the country, though breeding is suspected elsewhere; non-breeding counts of 150+ have been recorded here and at Barotse floodplain, whilst there was a count of 1,226 at the Kafue Flats in July 1997 (Leonard 2001). The Okavango Delta in Botswana is a core breeding area for this population, where it is in breeding plumage from November to April (Tyler 2001). The Makgadikgadi Pans also support breeding colonies; 136 adults were counted at this site's Mea Pan in early 2000, where nests were also observed (Tyler & Brewster 2000), while 200 were seen at the Nata Delta (part of the same system) in August 1997 (Tyler 2001).

Elsewhere in the sub-region, site totals are generally much lower, with Mkuzi Game Reserve being South Africa's only IBA holding more (179 recorded) than the current IBA-Africa threshold of 150 (Barnes 2001). This population is now becoming very scarce in Madagascar (F. Hawkins, *in litt.*). There is a count of 600 from the Bemamba wetland complex in western Madagascar (Project ZICOMA 2001). A population estimate of 5,000-15,000 is proposed, with a 1% level of 100.

***Chlidonias leucopterus,* White-winged (Black) Tern**

Population *leucopterus*, S & E Europe (breeding)
This population has a wide distribution in its breeding range from Italy to Central Asia, which includes some rather remote regions. Data from sub-Saharan Africa, its main non-breeding area, can thus be useful in estimating the population. Recently, huge flocks have been recorded in Uganda, which alone justify a significant revision of the Rose & Scott (1997) estimate of 200,000-250,000, based on Perennou *et al.* (1994). The key sites in Uganda are on Lake Victoria, where flocks totalling about 1 million birds were counted in November 1999 at Lutembe Bay, rising to a peak of about 2.5 million in early December 1999, with about 2 million present in February-March 2000; a further 1 million birds were estimated at Mabamba Bay some 15 km away in mid March 2000 (Byaruhanga *et al.* 2002). Other high counts include a flock of 1.5 million at Queen Elizabeth National Park in western Uganda (Wilson 2000). The high counts at Lutembe have all been achieved through making evening counts, when the terns come in to roost on the lake's mud islands.

No other counts in Africa compare with these, indicating that Lake Victoria is a key non-breeding area for this species, with the Lutembe Bay area providing globally important roosts. However, this tern is widely recorded in flocks of thousands elsewhere, e.g. 2,120 at Masinga Reservoir and frequently over 1,000 at Dandora Ponds, Kenya (Bennun & Njoroge 1999) and over 20,300 at Lake Rukwa in Tanzania in January 1995 (Katondo 1997). N. Baker (*in litt.*) also reports of huge flocks at Musoma and at other sites along the Tanzanian shore of Lake Victoria, and flocks of tens of thousands at several other sites in Tanzania, with perhaps >200,000 away from the lake. This tern is common and widespread in Southern Africa (Sinclair *et al.* 1993) and common in parts of West Africa, e.g. 3800 at Lac Débo in Mali's Inner Niger Delta in January 1997 (Dodman *et al.* 1997).

Based on these data from Uganda, a new population is proposed of 2,500,000-3,500,000. There is a need to determine the sites and status of this population's important breeding areas, which are presumably east of the Urals, as no currently known sites can even begin to account for these high non-breeding data from Africa. The overall trend of the population is unknown; there have been declines in Europe, at the western limits of the breeding range.

***Chlidonias niger,* Black Tern**

Population *niger*, Europe, West & Central Asia (breeding)
This population breeds quite widely in Europe, in West and Central Asia, east to the Altai Mountains. It is a widespread non-breeding visitor to Africa, especially along the coast, with regular flocks along the coast of West Africa, including frequently over 5,000 birds at Dakar, Senegal (pers. obs.) and high counts from coastal Ghana, e.g. 12,700 at Densu Delta, 3,350 at Keta Lagoon, 6,570 at Muni-Pomadze, 1,750 at Sakumo Lagoon and 18,100 at Songhor Lagoon (Ntiamoa-Baidu *et al.* 2001). The wetlands of southern Benin are also important for black tern, with 5,250 recorded here in January 1998, including 4,227 at Lac Nokoue (Dodman *et al.* 1999). There were 2,000 counted in the Bijagós, Guinea-Bissau in 1992 (Altenburg *et al.* 1994). Some 250 birds were still at Gamba, coastal Gabon in April 1999, with some already coming into breeding plumage (pers. obs.). Large flocks are counted at times in Namibia, where there 30,000 were recorded in the January 1998 AfWC in the area of Sandwich Harbour (Dodman *et al.* 1999). However, this species is much less numerous/common further south.

There are very occasional records from the Rift Valley of East Africa, but this bird does not occur on the eastern seaboard of Africa. There is also a record far inland in Democratic Republic of Congo from the Luilaka River (Demey *et al.* 2000).

Rose & Scott (1997) give a population estimate of 200,000, based largely on breeding data from Europe. There could easily be this many along the western seaboard of Africa during the northern winter, but it is not possible to improve this estimate given the current level of coverage of the coastline during coordinated counts.]

***Anous stolidus,* Brown / Common Noddy**

Population *stolidus,* Caribbean, S Atlantic Islands, Gulf of Guinea Islands (breeding)
Chardine *et al.* (2000) estimate the Caribbean breeding population at 12,000-18,000 pairs (36,000-54,000 individuals). In the Atlantic, this population breeds on islands off Brazil (St Paul's Rocks, Fernando de Noronha and Trinidade), where no data is reviewed here. It also breeds in the Gulf of Guinea Islands, Ascension, St Helena and Tristan da Cunha.

In the Gulf of Guinea, Christy (2001) gives a figure of 4000-8000 pairs for the Tinhosas Islands, whilst breeding also takes place at São Tomé and Annobón, where there are 1500 pairs (Pérez del Val 2001). There is perhaps a total population in the Gulf of Guinea of some 5500-10,000 pairs, or 16,500-30,000 individuals.

The stacks of Ascension support 500 pairs, whilst breeding also occurs in northeast and southwest St Helena and on Tristan Island, Inaccessible Island, the Nightingale Island Group and Gough Island, all in the Tristan da Cunha island group.

Fishpool & Evans (2001) give a 1% threshold of 7500 for Africa.

The total population is likely to be in the range D (100,000-1,000,000), but this should be improved in the future by a closer examination of data from all known breeding localities.

Population *plumbeigularis,* S Red Sea Gulf and Gulf of Aden (breeding)
In the Red Sea, this species breeds in the Suakin Archipelago of Sudan (Robertson 2001), where there are perhaps 1000 pairs. Breeding also occurs on a small number of the more vegetated of the Farasan Islands of Saudi Arabia, where there were 500 at the largest colony on Abu Shugar in 1993 (Scott 1995). In the Gulf of Aden, there were 20,000 pairs at Mait Island (Jasiira Maydh) off northern Somalia in 1979 (Robertson 2001).

There would thus appear to be a population of some 25,000 pairs or 75,000 individuals; a 1% level of 750 is proposed.

Population *pileatus,* East Africa coast, Seychelles & Madagascar E to N Australia, Polynesia, Hawaii, Easter Is (breeding)
No attempt is made here to estimate the size of this wide-ranging population, but a brief review is presented of the population in Seychelles and Madagascar. This is a widely distributed breeding bird in Seychelles, with colonies established on a number of islands, summarised by Skerrett *et al.* (2001) as being:

- Aride: about 8000 pairs
- Cousin: about 1000 pairs
- Cousine: about 900 pairs
- Bird: about 10,000 pairs
- African Banks: about 4000 pairs
- Marie-Louise: about 2000 pairs
- Etoile: about 1000 pairs
- Desnoeufs: several thousand pairs
- Farquhar: 10,000 pairs
- Cosmoledo: a few hundred pairs
- Aldabra: about 3500 pairs.

Skerrett *et al.* (2001) lists other breeding islands: Ile aux Vache Marine, Frégate, Ile Sèche, Mamelles, Récif, L'Ilot Frégate, Zavé, Booby, Coëtivy, Platte, Denis, Rémire, D'Arros, St Joseph Atoll, Desroches, Alphonse and Goëlettes. There would thus seem to be a minimum of 50,000 pairs (150,000 birds) in Seychelles.

In Madagascar, *A. stolidus* is reported from the Cape Anorontany archipelago in the north (Project ZICOMA 2001). There are some 100 pairs at Ile du Lys in the Glorieuses Archipelago (Le Corre & Safford 2001), some 10,000-100,000 pairs on Serpent Island, Mauritius, <1000 pairs on the Rodrigues islets and 4,500 pairs on Cargados Carajos shoals (Safford 2001). Brown Noddy also breeds on Réunion and on the Iles Glorieuses (Poillot & Salamolard 1999).

In Eastern Africa, *A. stolidus* breeds on the Bajan islands in southern Somalia (Robertson 2001), the Lamu Archipelago, where there are 'hundreds', has bred on Whale Island and may also breed on Kisite (Britton 1980) and on Latham Island, Tanzania, where there were 10,000 in 1989 (Bregnballe *et al.* 1990).

The population in the Indian Ocean associated with Africa would appear to be in the order of 100,000-200,000 pairs, or 300,000-600,000 individuals.

In the Chagos Archipelago, south of the Maldives, Symens in Sheppard & Seaward (1999) recorded 48,224 breeding pairs. This gives an additional estimate of about 150,000 birds for Chagos.

***Anous minutus,* Black Noddy**

Population *atlanticus,* Tropical Atlantic Is to Gulf of Guinea Islands (breeding)
This population breeds on islands off Brazil (St Paul's Rocks, Fernando de Noronha and Trinidade), the Gulf of Guinea Islands and Ascension and St Helena. In the Gulf of Guinea islands, there are some 10,000-20,000 pairs in the Tinhosas Islands (Christy 2001) and 13,500 pairs on Annobón (Pérez del Val 2001a), although Pérez del Val (2001b) indicates that the population on Annobón is smaller than this figure, which dates from 1959, suggesting that this is a result of earlier over-estimates of breeding numbers.

There were 5000 pairs on the stacks of Ascension in 1990, as well as 5000 on Boatswainbird Island, just off Ascension Island; breeding also occurs at the two IBAs of St Helena (Rowlands 2001).

The total population in the tropical Atlantic associated with Africa is likely to be in the order of 30,000-50,000 pairs, or 90,000-150,000 birds.

***Anous tenuirostris,* Lesser Noddy**

Population *tenuirostris*, Seychelles, Mascarene Is, Chagos, Maldives (breeding)
This population breeds in the Indian Ocean in Seychelles, Cargados Carajos, Mauritius, Chagos and the Maldives. Skerrett *et al.* (2001) list the following breeding sites and approximate pairs for Seychelles:

- Aride: 170,000
- Cousin: 80,000
- Cousine: 60,000
- Frégate: 7,500
- Bird: 300
- Marie-Louise: 3,500
- Denis, Récif & Rémire: breeds

The total breeding population in Seychelles would thus appear to be in the order of 320,000 pairs or 960,000 birds.

There is a colony of some 10,000-100,000 pairs on Serpent Island, just north of Mauritius, at least 4000-6000 pairs on the Rodrigues islets and 15,000 pairs on the Cargados Carajos shoals (Safford 2001).

Fishpool & Evans (2001) give a 1% threshold for the IBA-Africa Programme of 15,000, suggesting a population of 1,500,000 for Africa-associated islands, though this could be on the high side, unless some sizeable colonies have been missed here.

Lesser Noddy also breeds in the Chagos Archipelago, where Symens in Sheppard & Seaward (1999) recorded 43,275 pairs (129,825 individuals. This gives a total estimate for Chagos of 130,000-150,000 birds.

A population estimate for Africa of 1,050,000-1,350,000 is thus proposed, with an additional 130,000-150,000 on Chagos. No information was found on the breeding population of the Maldives, which should be added to these figures to give an estimate of the total population.

***Gygis alba*, Fairy Tern**
Population *candida*, Indian Ocean
This population has sometimes been given sub-specific status, ascribed to the race *monte*. It is geographically isolated from the *candida* population that occurs from the southwestern central Pacific Islands to Marquesas. It breeds throughout Seychelles. On Aride, there are 1,700 pairs during the southeast monsoon and 5,600 pairs during the northwest monsoon (Bowler & Hunter 2000). Numbers also vary on Cousin from 1,200-3,600 pairs, on Cousine from 1,000-1,500 pairs, on Frégate from 2,000-4,000 pairs, on St. François from 1,000-1,500 pairs, on Marie-Louise from 2,000-4,000 pairs and 100-400 pairs on Aldabra (Skerrett *et al.* 2001). However, as this species tends to breed year-round, total numbers breeding per island are likely to be significantly higher.

About 5,000 pairs also breed on Cargados Carajos shoals, with some 20 pairs on Cocos and Sables of the Rodrigues islets (Safford 2001). Breeding also occurs on Chagos, where there are some 875 breeding pairs, based on estimates of 900 breeding birds on Diego Garcia, 200 on Great Chagos Bank, 400 on Peros Banhos and 250 on Salomon (Sheppard & Topp, undated).

Rose & Scott (1997) give a population estimate of D been based on Croxall *et al.* (1984). Considering the above data, a revised estimate of 150,000-500,000 is proposed, with a mid-point 1% level of 3250.

***Rynchops flavirostris,* African Skimmer**

Two populations are proposed, which are suspected not to mix regularly, one for western and Central Africa, the other for Eastern and Southern Africa. Formerly, only one population has been described. However, the intra-African migratory and/or nomadic movements of this species are not well understood, so this population split may warrant revision should further information come to light. Recent estimates of the total population size range from 10,000 to at least 20,000 birds (BirdLife International 2000), with Del Hoyo *et al.* (1996) giving a figure of <10,000. Fishpool & Evans (2001) give a population estimate of B and a 1% threshold of 100. Here, a species estimate is proposed of around 20,000 birds, split fairly evenly between two populations.

Population *flavirostris,* West & Central Africa (breeding)
African skimmer is fairly widespread in West Africa, but never very numerous. There are breeding records from suitable habitats (usually sandy islands in rivers) from mid Senegal River, mid Niger River, lower Benue (Nigeria), Ogououé (Gabon), Logone and Chari rivers (north Cameroon / Chad) and the Congo River (Borrow & Demey 2001). There is also a (possibly discrete?) small breeding population in coastal West Africa, with breeding occurring in Liberia (Gatter 1997) and in Côte d'Ivoire on the Cavally River (L. Fishpool, pers. comm.). African skimmer is likely to be more common in Central Africa, where it may well be overlooked. There are presumably numerous potential breeding sites along the many rivers during the dry season, perhaps not within the central Congo Basin, but in periphery zones.

Outside the breeding season, this bird becomes more widespread, and concentrations may also be found at certain sites, especially in Central (and SW West) Africa, from where there are fairly recent records of sizeable groups, e.g. 833 on Sanaga River, Cameroon in February 1998 and 520 at Baie de Mondha - Pointe Moka, Gabon in January 1998 (Dodman et al 1999). Further west, there were 170 at the Densu Delta in Ghana in January 1997 (Dodman *et al.* 1997) and 98 in Guinea in January 1999, when there were also 20 recorded in Chad (Dodman et al in prep.); 200 were in northern Cameroon in January 1993 (Taylor 1993).

There do not appear to be many records of sizeable groups of skimmer in West Africa, where this seems to be a rather localised bird, breeding in scattered small colonies. It may have declined in the Sahel zone, where there is much human activity along the main river channels. There are certainly few recent records of note from the mid Senegal and mid Niger Rivers. It is suspected that there are some <5000 breeding in West Africa, west of Cameroon, with the main breeding areas being in forest and forest periphery zones, possibly not much more than 1000 pairs altogether. The relatively high counts from Cameroon and Gabon suggest there is still a reasonable population in Central Africa, which presumably visits the lower reaches of several major rivers outside the breeding season. The population is likely to be in the region of 7,000-13,000, a 1% level of 100 is proposed. This may need to be increased if the Congo Basin is found to support more substantial numbers. The trend is probably stable in the forest blocks, but would appear to be in decline in the Sahelian zone.

Population *flavirostris,* Eastern & Southern Africa (breeding)
This population occurs from the Nile River in Sudan (with vagrants further north) down through the Rift Valley to southern Tanzania, thence into northern areas of Southern Africa, where it is rare south of the Zambezi River, except in northern Botswana and parts of Mozambique.

In Eastern Africa, the main countries of importance are Sudan, Ethiopia, Uganda, Kenya and Tanzania. In Kenya, it is a regular visitor, mainly from August to March at the Sabaki River mouth on the Indian Ocean, whilst up to 50 have nested at Lake Turkana (Lewis & Pomeroy 1989); it is an irregular visitor to lakes Naivasha and Bogoria, while there are no recent records from Nakuru (Bennun & Njoroge 1999), where it used to be regular (Britton 1980). There were 560 in Kenya in January 1993 (Taylor 1993). At Turkana, flocks of 1000 have been recorded resting on the spit at Ferguson's Gulf between September and November (Britton 1980). There is also a record of 1000+ birds from the Ethiopian side of Lake Turkana and the Omo Delta (Ethiopian Wildlife & Natural History Society 2001). There were also 900 at Lake Abijatta in January 1998, when 636 were also recorded in Uganda (Dodman *et al.* 1999), with 56 at Lake George, 370 at the Kazinga Channel and 210 at Murchison Falls (AfWC database). In Uganda, there are maximum records of 650 from the Queen Elizabeth National Park and about 1400 from Murchison Falls National Park on the River Nile (Byaruhanga *et al.* 2001). There were 1160 at Murchison in January 1995 (Dodman & Taylor 1995) whilst 322 were counted in Uganda in January 1999 (Dodman *et al.*, in prep).

In Tanzania, African skimmer breeds on exposed sandbanks in the Ruvuma, Rufiji, Ruaha and Kilombero rivers during the dry season, mainly in July, whilst elsewhere in Tanzania up to 1500 have been recorded at Lake Rukwa in the West Rift (Britton 1980). 726 were recorded further north at Nyumba ya Munga in January 1995 (Dodman & Taylor 1995). 300 have been recorded at Katavi National Park, also in western Tanzania, 376 in the Kilombero Valley and 1500 at Lake Rukwa also in 1995 (Baker & Baker 2001), demonstrating the continued importance of this site. Baker (1997) estimates around 4,000 to occur in Tanzania. Britton (1980) suggests that breeding birds from southern Tanzania (and possibly elsewhere in the southern tropics) spend the austral summer in the west Rift, as far south as Lake Rukwa. Given these regular records of sizeable non-breeding flocks and the availability of suitable breeding sites especially in southern Tanzania, there may well be around 10,000 birds in Eastern Africa.

In Southern Africa, the African skimmer is much less numerous, occurring mainly in Malawi, Zambia and Botswana. There is a recent record of 242 in Malawi January 1999 (Dodman *et al.*, in prep) and a count of 280 at Lake Chilwa, Malawi in 2000 (Dowsett-Lemaire *et al.*, 2001).

In Zambia, skimmer breeds on the Liuwa plains, the Barotse Floodplain and the Kafue Flats in Southern and Western Provinces, where there have been counts of 150+, 100+ and 520 respectively, the latter count in January 2000 (Leonard 2001). It also breeds at a number of suitable sites along the Zambezi River, for instance just above the Victoria Falls (pers. obs.) and also along the Luangwa River, where at least 100 have been recorded (Leonard 2001). However, the breeding population along the middle Zambezi has apparently fallen, from 250 birds in 1987 to 36 in 1991, and there has been a contraction in breeding range and fall in numbers south of the Zambezi, with no current breeding sites in South Africa (Tree, 1997).

In Botswana, skimmers occur regularly in the Okavango, Linyanti and Chobe river systems to as far south as Lake Ngami (Penry 1994), breeding in Botswana between July and November (Skinner 1997). Vial (1994) recorded a maximum of 204 adults in 1994 on the Okavango River between Mohembo and the Ngarange channel. There were 94 in Botswana in July 98 (Dodman *et al.*, 1999), with 88 recorded along the Okavango River between Mohembo and downriver of Shakawe, where there were 133 in July 1999 (Tyler & Stone 2000). Pryce (2001) found a maximum of 39 nests on six sandbanks on the Okavango River from above Shakawe downriver to Palm Island during the breeding season of 2000. The other breeding area in Botswana is the Chobe River, where there are records of some 50 birds breeding, and 200-300 skimmers just outside Botswana in November 1999, at least half of which were juveniles, on several sandbanks on the Zambezi River between Namibia and Zambia (Tyler & Stone 2000). Tyler & Stone (2000) list some non-breeding sites records, including up to 200 at Lake Ngami in 1971, and a number of threats in Botswana, including predation, disturbance and trampling.

This population seems to be in decline, especially in the south of its range, and colonies in the major rivers appear to be prone to a number of threats, especially disturbance. Colonies may also be affected by artificial flooding regimes imposed by controlled, unseasonal water flow from dams.

The breeding population is most likely to be <5000 in Southern Africa. It is unclear whether birds in Eastern and Southern Africa should be treated as separate populations or not. However, with regular records from the southern Rift in Zambia and not much further north at Lake Rukwa in Tanzania, one population is defined. The total population for Eastern and Southern Africa is likely to be <15,000; a population estimate is proposed of 8,000-12,000, with a trend declining, in agreement with del Hoyo *et al.* (1996).

UPDATE WITH IWC: eg 1562 in 2005 and 1528 in 2009, when there were 1,500 at Lochinvar NP on the Kafue Flats. TRIM shows increase, but does not look reliable … An estimated 60 – 80 pairs breeding in Okavango (Tyler 2011).

References

Al-Saghier, O. 2002. Survey of the breeding seabirds in Red Sea of the Republic of Yemen. Report for PERSGA, Jeddah.

Altenburg, W. & Kamp, J. van der. 1991. Ornithological importance of coastal wetlands in Guinea. ICBP Study Report no. 47, ICBP, Cambridge, UK / WIWO Report no. 35, Foundation WIWO, Zeist, The Netherlands.

Amat, J.A. *In litt.* 2002. Datos Focha cornuda Libro Rojo.

Ash, J. & Atkins, J. 2009. Birds of Ethiopia and Eritrea: an atlas of distribution. Christopher Helm, London.

Ash, J.S. & Miskell, J.E. 1998. *Birds of Somalia*. Pica Press, Sussex, UK.

Ash, J.S. & Miskell, J.E. 1983. Birds of Somalia, their habitat, status and distribution. *Scopus* Special Supplement Number 1.

Avian Demography Unit. 2001. *White Storks Background*. http://www.uct.ac.za/depts/stats/adu/wstork01.htm

Barlow, C., Wacher, T. & Disley, T. 1997. *A field guide to Birds of The Gambia and Senegal*. Pica Press, Sussex.

Baker, N.E. 1994. The Spur-winged Plover *Vanellus spinosus* in Tanzania. *Scopus* 18: 130-132.

Baker, N.E. 1996. *Tanzania Waterbird Count. The first coordinated count on the major wetlands of Tanzania. January 1995*. Wildlife Conservation Society of Tanzania, Dar es Salaam.

Baker, N.E. In press. The northern population of the Cape Teal *Anas capensis. Wildfowl*.

Baker, N.E. & Baker, E.M. 2002. *Important Bird Areas in Tanzania: A first inventory*. Wildlife Conservation Society of Tanzania, Dar es Salaam, Tanzania.

Baker, N.E. and Baker, E.M. (in prep 2005). *Birds of Tanzania: An Atlas of Distribution and Seasonality*.http://home.no.net/stenil1/TZbirdatlas/tzatlas.htm

Barnes, K.N. (ed.) 2000. *The Eskom Red Data Book of Birds of South Africa, Lesotho and Swaziland*. BirdLife South Africa, Johannesburg

Barnett, L.K., Emms C. & Camara, A. 2001. The birds of Bijol Island, Tanji River (Karinti) Bird Reserve, The Gambia. *Bull. ABC* Vol 8 No 1: 39-43.

Beesley, J.S.S. & Irving, N.S. 1976. The status of birds of Gabarone and its surroundings. *Botswana Notes & Records* 8: 231-261.

Beilfuss, R., Bento, C., Hancock, P., Kamweneshe, B., McCann, K., Morrison, K. & Rodwell, L. In prep. Water, wetlands, Wattled Cranes, and human welfare: a regional monitoring and conservation program for southern Africa. *Proceedings of the Environmental Monitoring of Tropical and Subtropical Wetlands, 4-8 December 2002, Maun, Botswana*. Harry Oppenheimer Okavango Research Centre and University of Botswana, Botswana.

Beilfuss, R. In litt. E-mail correspondence, 2002.

Beilfuss R., Dodman, T. & Urban, E. (2007) Status of Cranes in Africa in 2005. The Ostrich 78(2): 175-184.

Bennun, L.A. 1993. Threatened birds of Kenya 3: Great Crested Grebe. *Kenya Birds* 2(1):35-36.

Bennun, L. A. & Njoroge, P. (eds) 1996. Birds to watch in East Africa: A preliminary Red Data list. *Research Reports of the Centre for Biodiversity, National Museums of Kenya: Ornithology* 2.

Bennun, L.A. & Njoroge, P. 1999. *Important Bird Areas in Kenya*. Nature Kenya, Nairobi.

Bento, C. & Beilfuss, R. 2000. *Wattled Cranes, waterbirds, and wetland conservation in the Zambezi Delta, Mozambique*. Working Paper 1. Zambezi Basin Crane and Wetland Conservation Program. http://www.savingcranes.org/FEDprojects.

BirdLife Botswana. Unpubl. (2002). A Proposed Study of Slaty Egrets *Egretta vinaceigula* in Botswana by Birdlife Botswana. Unpublished project proposal.

BirdLife International/European Bird Census Council. 2000. European bird populations: estimates and trends. Cambridge, UK. BirdLife International Conservation Series No. 10.

Borrow, N. & Demey, R. 2001. *Birds of Western Africa*. Christopher Helm, London.

Bowler, J. & Hunter, J. 2000. Aride Island Nature Reserve, Seychelles. Annual Report 1999. Internal report, RSCN.

Bregnballe, T., Halberg, K., Hansen, I.N., Petersen, I.K. & Thorup, O. 1990. *Ornithological winter surveys on the coast of Tanzania 1988-89*. ICBP Study Report No. 43, Cambridge.

Britton, P.L. (ed.) 1980. *Birds of East Africa – their habitat, status and distribution*. East Africa Natural History Society, Nairobi.

Brouwer, J. & Mullié, W. 2001. A method for making whole country waterbird population estimates, applied to annual waterbird census data from Niger. In: Proceedings of the Tenth Pan-African Ornithological Congress, Kampala, Uganda, 3-8 September 2000. *Ostrich* Supplement No. 15: 73-82.

Brown, H.D. 1957. The breeding of the Lesser Flamingo in the Mweru wantipa, Northern Rhodesia. *Ibis* 99:688-692.

Brown, L.H., Urban, E.K. & Newman, K. 1982. *The Birds of Africa Volume I*. Academic Press, London.

Burger, A.E., Lawrence, A.D. & Davis, L.M. 1999. Census and distribution of Bridled Terns on Cousin Island in 1999. Internal report, BirdLife Seychelles.

Byaruhanga, A., Kasoma, P. & Pomeroy, D. 2001. *Important Bird Areas in Uganda*. East African Natural History Society, Kampala.

Byaruhanga, A., Arinaitwe, J. & Williams, C. 2002. Large concentrations of White-winged Black terns *Chlidonias leucopterus* at Lutembe Bay, Lake Victoria. *Bull ABC* Vol 9 No 1:25-26.

Campredon, P. 1987. La reproduction des oiseaux d'eau sur le Parc National du Banc d'Arguin (Mauritanie) en 1984-85. *Alauda* 55: 187-210.

Carswell, M., Pomeroy, D., Reynolds, J. & Tushabe, H. 2005. *The Bird Atlas of Uganda.* BOU, Oxford.

Catard 2001.

Cave, F.O. & MacDonald, J.D. 1955. Birds of the Sudan: their identification and distribution. Oliver & Boyd, Edinburgh.

Chardine, J.W., Morris, R.D. & Norris R.C.. 2000. Status and Conservation needs of Brown Noddies and Black Noddies in the West Indies. In: Schreiber, E.A. & Lee, D.S. (eds) Status and Conservation of West Indian seabirds. *Soc. Caribbean Ornith*. Spec. Pub. No.1: 118-125.

Christy, P. 2001. São Tomé and Príncipe. In: Fishpool, L.D.C. & Evans, M.I., eds. 2001. Important Birds in Africa and associated islands: Priority sites for conservation. Newbury & Cambridge, UK: Pisces Publications & BirdLife International (BirdLife Conservation Series No. 11).

Clancey, P.A. 1996. *The birds of southern Mozambique*. African Bird Book Publishing, Durban.

Clapham, C.S. 1964. The birds of the Dahlac Archipelago. *Ibis* 106: 376-388.

Collar, N.J. 1994. The Shoebill. *Bull. ABC* 1(1):19-20.

Cooper, J. 1981. Biology of the Bank Cormorant, Part 1: Distribution, population size, movements and conservation. *Ostrich* 52(4):208-215

Cooper J, Williams AJ, Britton PL 1984 Distribution, population sizes and conservation of breeding seabirds in the Afrotropical region. In: Croxall JP, Evans PGH, Schreiber RW (eds). *Status and Conservation of the World's Seabirds*. ICBP Techn. Publ. 2: 403-419. ICBP, Cambridge.

Cooper, J., Brooke, R.K., Cyrus, D.P., Martin, A.P., Taylor, R.H. and Williams, A.J. 1992. Distribution, population size and conservation of the Caspian Tern *Sterna caspia* in southern Africa. *Ostrich* 63: 58-67.

Coulthard, N. 2001.

Coulthard, N. 2001. Eritrea. In: Fishpool, L.D.C. & Evans, M.I., eds. 2001. Important Birds in Africa and associated islands: Priority sites for conservation. Newbury & Cambridge, UK: Pisces Publications & BirdLife International (BirdLife Conservation Series No. 11).

Cramp, P.S. & Condor, P.J. (1970). A visit to the oasis of Kufra, spring 1969. *Ibis* 112: 261-263.

Crawford, R.J.M. *in* Harrison, J.A., Allan, D.G., Underhill, L.G., Herremans, M., Tree, A.J., Parker, V. & Brown, C.J.. 1997. The Roseate Tern. In: *The Atlas of Southern African Birds*. BirdLife South Africa, Johannesburg.

Crawford R.J.M. 1999. Seabird responses to long-term changes of prey resources off southern Africa. In: Adams N.J. & Slotow R.H. (eds). *Proc. 22 Int. Ornithol. Congr*., Durban: 688-705. BirdLife South Africa, Johannesburg.

Crawford, R.J.M. In prep. Species texts for 'Cape Cormorant *Phalacrocorax capensis',* 'Crowned Cormorant *Phalacrocorax coronatus',* Great White Pelican *Pelceanus onocrotalus*, Kelp Gull *Larus dominicanus.* In: Hockey P.A.R. *et al.* In prep. *Roberts' Birds of Southern Africa*, 7th ed.

Crawford R.J.M., Cooper J., Shelton P.A. 1982. Distribution, population size, breeding and conservation of the Kelp Gull in southern Africa. *Ostrich* 53:164-177

Crawford, R.J.M., Ryan, P.G., Williams, A.J. 1991. Seabird consumption and production in the Benguela and western Agulhas ecosystems. *S. Afr. J. mar. Sci.* 11:357-375.

Crawford, R.J.M., Dyer, B.M. 1995. Responses by four seabirds to a fluctuating availability of Cape Anchovy *Engraulis capensis*. *Ibis* 137:329-339.

Crawford, R.J.M., Underhill, L.G. (Submitted) Aspects of breeding, population trend, measurements and molt of Hartlaub's Gull *Larus hartlaubii* in Western Cape, South Africa.

Crawford, R.J.M. 2007. Trends in numbers of three cormorants Phalacrocorax spp. Breeding in South Africa's Western Cape Province. Chapter 20. In: S.P. Kirkman (ed.) 2007. Final Report of the BCLME (Benguela Current Large Marine Ecosystem) Project on Top Predators as Biological Indicators of Ecosystem Change in the BCLME. Avian Demography Unit, Cape Town.

RJM Crawford, BM Dyer, J Kemper, RE Simmons, L Upfold, F vaz Velho. 2007. Trends in numbers of Cape Cormorants (*Phalacrocorax capensis*) over a 50-year period, 1956/57-2006/07. Chapter 19. In: S.P. Kirkman (ed.) 2007. Final Report of the BCLME (Benguela Current Large Marine Ecosystem) Project on Top Predators as Biological Indicators of Ecosystem Change in the BCLME. Avian Demography Unit, Cape Town.

Abdim's Stork *Ciconia abdimii* in Niger: population size, breeding ecology and home range
Kim Diget Christensen*, Knud Falk, Flemming Pagh Jensen and Bo Svenning Petersen. *Ostrich 2008, 79(2): 177–185.*

Crivelli & Schreiber 1984. Status of the Pelecanidae. *Biological Conservation 30* (1984): 147-156.

Croxall, J.P., Evans, P.G.H. and Schreiber, R.W. (eds.). 1984. *Status and Conservation of the World's Seabirds*. ICBP Technical Publication No. 2. Cambridge, UK.

Cunningham-van Someren, G.R. 1994. Comment: Great Crested Grebes. *Kenya Birds* 2(2):55-56.

Dean, W.R.J. 2000. The Birds of Angola. *BOU checklist series* 18. BOU, Tring, UK.

Dean, W.R.J. et al. 1998. Notes on the birds of Angola. Durban Museum Novitates 14: 43-92.

Delany, S., Scott, D., Dodman, T. & Stroud, D. (eds). 2009. An Atlas of Wader Populations in Africa and Western Eurasia. Wetlands International, Wageningen, The Netherlands.

De Marchi et al. 2009.

Demey, R. & Louette, M. 2001. Democratic Republic of Congo. In: Fishpool, L.D.C. & Evans, M.I., eds. *Important Birds in Africa and associated islands: Priority sites for conservation*. Newbury & Cambridge, UK: Pisces Publications & BirdLife International (BirdLife Conservation Series No. 11).

Demey, R., Herroelen, P. & Pedersen, T. 2000. Additions and annotations to the avifauna of Congo-Kinshasa (ex-Zaïre). *Bull. B.O.C.* 12(3): 154-172.

Diagana et al. 2007. ABC 189-192.

Diawara, Y., Siddaty, Z. & Béchet, A. 2008. Découverture de deux colonies de Flamants roses dans l'Aftout es Saheli, Mauritanie le 29 février 2008. *Flamingo* 16:28.

Diawara, Y., Arnaud, A., Mohamed, C. & Béchet, A. 2009. Monitoring of the Greater Flamingo Phoenicopterus roseus in Mauritania. Flamingo, Special Publication 1:34-36.

Dinesen, L. In prep. (2002). Breeding colonies of African Spoonbill in Bahi Swamp, Tanzania.

Dinesen, L. & Baker, M. (2006). Status of Shoebill *Balaeniceps rex* in Malagarasi, Tanzania. *Bull ABC Vol 13 No 1.*

Dinesen, L. In litt. 2002. E-mail correspondence, July/August 2002.

Dodman, T. 1996. Present status and distribution of cranes in the Kafue Flats, Zambia, with reference to population estimates of the 1980's. Pages 255-259. In R. Beilfuss, W. Tarboton & N. Gichuki (eds.) *Proceedings of the 1993 African Crane and Wetland Training Workshop*. International Crane Foundation, Baraboo, Wisconsin.

Dodman, T., Beibro, H., Hubert, E. & Williams, E. 1999. African Waterbird Census 1998. Les Dénombrements d'Oiseaux d'Eau en Afrique, 1998. Wetlands International, Dakar, Senegal. 296pp.

Dodman, T. & Diagana, C. 2007. Movements of waterbirds within Africa and their conservation implications. *Ostrich* 78(2): 149-154.

Dodman, T., de Vaan, C. & Nivet, C. 1997.

Dodman, T, Williams, E., Beibro, H & Diagana, C. 2002.

Dodman, T. & Rose, P.

Dodman, T. & Taylor, V. 1995.

Dodman, T. & Taylor, V. 1996.

Dodman, T., Barlow, C., Sá, J. & Robertson, P. 2004. *Zonas Importantes para as Aves na Guiné-Bissau / Important Bird Areas in Guinea-Bissau*. Wetlands International, Dakar / Gabinete de Planificação Costeira / ODZH, Bissau.

Dodman, T. and Sá J., 2005. Monitorização de aves aquáticas no Arquipélago dos Bijagós, Guiné Bissau / Waterbird monitoring in the Bijagós Archipelago, Guinea Bissau. Wetlands International, Dakar / Gabinete de Planifição Costeira / ODZH, Bissau.

Dodman, T. (compiler) 2013. International Single Species Action Plan for the Conservation of the Shoebill Balaeniceps rex. AEWA Technical Series No. 51. Bonn, Germany.

Dowsett, R.J., Aspinwall, D.R. & Leonard, P.M. 1999. Further additions to the avifauna of Zambia. *Bull. B.O.C.* 119(2): 94-103.

Dowsett, R.J., Christy, P. & Germain, M. 1999. Additions and corrections to the avifauna of Central African Republic. *Malimbus* 21:1-15.

Dowsett, R.J., Aspinwall, D.R. & Dowsett-Lemaire, F. 2008. The Birds of Zambia. Tauraco Press & Aves, Liège.

Dowsett & D-L 2006. Malawi.

Dowsett, R.J. 1971. A preliminary survey of Zambia's wetlands and wildfowl. IWRB Bull. 32:75-84.

Duffy, D.C., Siegfried, W.R., Jackson, S. 1987. Seabirds as consumers in the southern Benguela region. *S. Afr. J. Mar. Sci*. 5:771-790

Du Plessis, G.J. 1995. Large aggregations of Blackwinged Pratincoles *Glareola nordmanni* in the northern Orange Free State. *Ostrich* 66: 27-28.

Dupuy, A.R. 1984. Quelques données nouvelles sur l'avifaune du Sénégal ainsi que sur celles des Iles de la Madelaine. *Alauda* 52: 177-183.

Du Toit, M., Boere, G.C., Cooper, J., Kemper, J., Lenten, B., Simmons, R.S., Whittington, P.A., & Byers, O. (Eds). 2002. *Conservation Assessment and Management Plan for Southern African Coastal Seabirds. Workshop Report: Cape Town, South Africa, 4 – 8 February 2002.* Avian Demography Unit, University of Cape Town, Conservation Breeding Specialist Group, IUCN/SSC.

Dyer, B.M. 2007. Chapter 39. Report on top-predator survey of southern Angola including Ilha dos Tigres, 20-29 November 2005. In: S.P. Kirkman (ed.) 2007. Final Report of the BCLME (Benguela Current Large Marine Ecosystem) Project on Top Predators as Biological Indicators of Ecosystem Change in the BCLME. Avian Demography Unit, Cape Town.

Erard, C., Guillou, J.J. & Mayaud, N. 1984. Sur l'identité spécifique de certains Laridés nicheurs au Sénégal. *Alauda* 52: 184-188.

Fay, M., Elkan, P., Marjan, M. & Grossmann, F. 2007. Aerial Surveys of Wildlife, Livestock, and Human Activity in and around Existing and Proposed Protected Areas of Southern Sudan, Dry Season 2007. WCS / Government of Southern Sudan.

Fishpool, L.D.C. & Evans, M.I., eds. 2001. *Important Birds in Africa and associated islands: Priority sites for conservation*. Newbury & Cambridge, UK: Pisces Publications & BirdLife International (BirdLife Conservation Series No. 11).

Fouquet, M. 1990. *Observations Ornithologiques dans le Parc des Oiseaux du Djoudj*. Rapport inédit, ONC, Chanteloup.

Franchimont et al. 2010. Les Oiseaux du Maroc.

Gatter, W. 1997. Birds of Liberia. Pica Press, Sussex.

Gerlach, J. & Canning, K.L. 1996. Seychelles Terrapin Conservation Project. *NPTS Internal Report*.

Gibson, D. St C. 2000. *Aerial Survey of Wattled Cranes in Ngamiland.* Report from *Audit & EIA of Veterinary Fences in Ngamiland*, Scott Wilson Kirkpatrick.

Gibson, D.St C., Craig, C., McCann, K. & Hancock, P. 2002. Aerial survey of Wattled Cranes *Bugeranus carunculatus* in the Okavango Delta, Botswana. *Babbler* 40: 5-14.

Gowthorpe, P., Lamarche, B., Bineaux, R., Gueye, A., Lehlou, S.M., Sall, M.A. & Sakho, A.C. 1996. Les oiseaux nicheurs et les principaux limicoles paléarctiques du Parc National de Banc d'Arguin (Mauritanie). Dynamique des effectifs et variabilité dans l'utilisation spatio-temporelle du milieu. Alauda 64: 81-126.

Green, A.J. 1993. The status and conservation of the marbled teal *Marmaronetta angustriostris*. IWRB Special Publication No.23, Slimbridge, UK.

Green, A.J., Echevarría, J.L., Ferrández, M. In prep. Cerceta Pardilla *Marmaronetta angustirostris.* In: SEO (Ed.). *Libro Rojo de las aves en España*. Ministerio de Medio Ambiente, Madrid.

Green, A.J., El Hamzaoui, M., El Agbani, M.A. y Franchimont, J. 2002. The conservation status of Moroccan wetlands with particular reference to waterbirds and to changes since 1978. *Biol. Cons.* 104: 71-82.

Grieve & Millington egypt red sea

Gustafsson, R., Hjort, C., Ottosson, U. & Hall, P. In press. Birds at Lake Chad and in the Sahel of NE Nigeria in 1997–2000. *Malimbus*.

Hafner, H., Pineau, O., Gueye, A., Johnson, A., Kayser, Y., Lamarche, B., Lucchesi, J.L. & Sall, M.A. 1999. Monitoring waterbird colonies in the Banc d'Arguin National Park (PNBA) and training Mauritanian technicians. In: *Tour du Valat. Annual report 1998*. Tour du Valat – Station Biologique.

Hafner 2001. In heron conservn book.

Hall, P. (1976a). Birds of Bulatura Oasis, Borno State. *Bulletin of the Nigerian Ornithological Society*. 12 (41): 35-37.

Hamerlynk, O. & Messaoud, B. 2000. Suspected breeding of Lesser Flamingo Phoenicopterus minor in Mauritania. *Bull. ABC* Vol.7 No.2: 109-110.

Harrison, P. 1983. Seabirds: an Identification Guide. Beckenham.

Harrison, J.A., Allen, D.G., Underhill, L.G., Herremans, M., Tree, A.J., Parker, V. & Brown, C.J. (eds). 1997. *The atlas of southern African birds. Vol. 1: Non-passerines*. BirdLife South Africa, Johannesburg.

Hazevoet, C. 1997. On a record of the Wattled Crane *Bugeranus carunculatus* from Guinea-Bissau. *Bull. B.O.C.* 117:56-59.

Higgins, P.J. & Davies, S. (Eds) 1996. *Handbook of Australian, New Zealand and Antarctic birds. Vol. III, Snipe to Pigeons*. Oxford Univ. Press, Melbourne and London.

Hockey, P.A.R., Dean, W.R.J., Ryan, P.G. (Eds) 2005. *Roberts - Birds of Southern Africa, 7th ed.* The Trustees of the John Voelcker Bird Book Fund, Cape Town.

Hockey, P.A.R., Underhill, L.G., Netherway, M. & Ryan, P.G. 1989. *Atlas of birds of the southwestern Cape*. Cape Bird Club, Cape Town.

Holmes, D.A. 1972. Bird notes from the plains south of Lake Chad, winter 1971-1972. *Bull. Niger. Orn. Soc.* 9:47-55, 76-84.

Howard, G. W. & Aspinwall, D.R. 1984. Aerial censuses of Shoebills, Saddlebilled Storks and Wattled Cranes at the Bangweulu Swamps and Kafue Flats, Zambia. *Ostrich* 55: 207-212.

Hoyo, J. del, Elliot, A. & Sargatal, J. 1992. *Handbook of the Birds of the World. Vol. 1*. Lynx Edicions, Barcelona.

Hughes, R.H. & Hughes, J.S. 1992. *A Directory of African Wetlands*. IUCN, Gland & Cambridge.

Huntley, B.J. & Matos, E.M. 1994. Botanical diversity and its conservation in Angola. *Strelitzia* 1:53-74.

Irwin 1981 Zim

Isenmann, P. 2006. Les Oiseaux du Banc d'Arguin. Parc National du Banc d'Arguin, Nouakchott.

Isenmann, P. & Moali, A. 2000. Oiseaux d'Algérie / Birds of Algeria. SEOF, Paris.

Isenmann et al. 2010. Birds of Mauritania.

Jennings 2010.

Jiguet, F. 2002. Taxonomy of the Kelp Gull Larus dominicanus Lichenstein inferred from biometrics and wing plumage pattern, including two previsouly undescribed subspecies. *Bull. B.O.C*. 122(1): 50-71.

Jones, C. & Hill, J. 1994. The Malagarasi/Moyowosi/Kigosi/Ugalla Riverine Wetland Ecosystem. *Report to the Director of Wildlife on the Current Status with Recommendations for more effective Management & further Research*. Frankfurt Zoological Society.

Kamweneshe, B. & Beilfuss, R. 2002. *Population and distribution of Wattled Cranes and other large waterbirds on the Kafue Flats, Zambia*. Working Paper 5. Zambezi Basin Crane and Wetland Conservation Program. http://www.savingcranes.org/FEDprojects.

Kamweneshe, B. & Beilfuss, R. In prep. *Wattled Cranes, waterbirds, and large mammals of the Liuwa Plain National Park, Zambia*. Working Paper 9. Zambezi Basin Crane and Wetland Conservation Program. http://www.savingcranes.org/FEDprojects.

Kamp, J. van der, Diallo, M. & Fofana, B. 2002. Dynamique des populations d'oiseaux d'eau. In: Wymenga, E., Kone, B., Kamp, J. van der & Zwarts, L. 2002. Delta Intérieur du Niger. Ecologie et gestion durable des ressources naturelles. Mali-PIN publication 2002-01. Wetlands Internaitonal, Sévaré / RIZA, Rijkswaterstaat, Lelystad, Altenburg & Wymenga, Veenwouden.

Kanyamibwa, S. 2001. Rwanda. In: Fishpool, L.D.C. & Evans, M.I., eds. *Important Birds in Africa and associated islands: Priority sites for conservation*. Newbury & Cambridge, UK: Pisces Publications & BirdLife International (BirdLife Conservation Series No. 11).

Keijl, G.O., Brenninkmeijer, A., Schepers, F.J., Stienen, E.W.M., Veen, J. & Ndiaye, A. 2001. Breeding gulls and terns in Senegal in 1998, and proposal for new population estimates of gulls and terns in north-west Africa. *Atlantic Seabirds* 3(2): 59-74.

James A. Kushlan, Melanie J. Steinkamp, Katharine Parsons, Jack Capp, Martin Acosta Cruz, Malcolm Coulter, Ian Davidson, Loney Dickson, Naomi Edelson, Richard Elliot, R. Michael Erwin, Scott Hatch, Stephen Kress, Robert Milko, Steve Miller, Kyra Mills, Richard Paul, Roberto Phillips, Jorge E. Saliva, Bill Sydeman, John Trapp, Jennifer Wheeler, and Kent Wohl. 2002. North American Waterbird Conservation Plan, Version 1. Waterbirds for the Americas Initiative, Washington, DC, USA.

Lamarche, B. 1988. Liste commentée des Oiseaux de Mauritanie. *Etudes Sahariennes et Ouest-Africaines* 1(4): 1-164.

Langrand, O. 1990. Guide to the birds of Madagascar. Yale University Press. New Haven & London.

Laurent, A. 1990. *Catalogue commenté de oiseaux de Djibouti*. Djibouti: Office National du Tourisme et de l'Artisant.

Leonard, P. 2005. Important Bird Areas in Zambia: Priority sites for conservation. Zambian Ornithological Society, Lusaka.

Lewis, A. & Pomeroy, D. 1989. *Bird Atlas of Kenya*. A.A. Balkema. Rotterdam.

Louette, M. 1988. *Les Oiseaux des Comores*. Musée Royal de l'Afrique Centrale. Tervuren, Belium.

Louette et al 2004. La faune …

Maclean, G.L. 1997. 1997. Spotted Dikkop *Burhinus capensis*, Water Dikkop *Burhinus vermiculatus*, Doublebanded Courser *Smutsornis africanus*. In: *The atlas of southern African birds. Vol. 1: Non-passerines*.

Harrison, J.A., Allen, D.G., Underhill, L.G., Herremans, M., Tree, A.J., Parker, V. & Brown, C.J. (eds), pp. 438-443.BirdLife South Africa, Johannesburg.

Martins. 1997. Various species (e.g. catltle egret) in Harrison et al. 1997.

McCann, K., Morrison, K., Byres, A., Miller, P. & Friedman, Y. (eds) 2001. Population and habitat viability assessment for the Blue Crane Anthropoides paradiseus. Final Workshop Report. Conservation Breeding Specialist Group (SSC/IUCN), Apple Valley, MN.

Meine, C.D. and Archibald, G.W. (eds.). 1996. *The Cranes: status survey and conservation Action Plan*. IUCN, Gland, Switzerland and Cambridge, UK. 294 pp.

Meininger & Atta. Egypt wetlands

Mertens, H. 1986. Contribution à l'ornithologie du Parc national des Virunga. *Gerfaut* 76: 213-219.

Mesmaekers, I. 1953. Le Petit Flamant rose au Congo. *Bull. Cercle Zool. Cong.* 21: 19-20.

Mokoko I. J., Bockandza, P., Ngong, C. & Bossela V. 2000. *Rapport sur les dénombrements des oiseaux d'Eau Congo. Janvier – Février 2000. Site : Lac Télé/Likouala aux Herbes*. Unpublished report to Wetlands International.

Morel, G.J. & Morel, M-Y. 1990. Les Oiseaux de Sénégambie. Notices et cartes de distribution. ORSTOM, Paris.

Morris, P. & Hawkins, F. 1998. Birds of Madagascar – a photographic guide. Pica Press, Sussex.

Mortimer, J.A. 1984. Rediscovery of the Turtle Dove (*Streptopelia picturata*) on Cosmoledo atoll in the Seychelles. *Ibis* 126: 81-82.

Mortimer, J.A. & Constance, A. 2000. Observations on the birds of Cosmoledo Atoll, Seychelles. *Bull. B.O.C.* 120(1): 46-57.

Mourer-Chauviré, C., Bour, R., Ribes, S. & Moutou, F. 1999. The Avifauna of Réunion Island (Mascarene Islands) at the Time of the Arrival of the First Europeans. In: Olson, Storrs L. (ed.). Avian Paleontology at the Close of the 20th Century: Proceedings of the 4th International Meeting of the Society of Avian Paleontology and Evolution, Washington D.C., 4-7 June 1996. *Smithsonion Contributions to Paleobiology* 89.

Muhweebwa, J. Unpubl. MSc study. University of Makerere, Kampala, Uganda.

Mukherjee, A., J. H. Hofmeyer, et al. 2003. Breeding success of White Storks Ciconia ciconia in the Western Cape, South Africa. Bird Numbers.

Nasirwa, O., Jackson, C. & Gichuki, P. 1995. Waterbirds on the Upper Tana River Dams. *Kenya Birds* 4(1):13.

Naurois, R. de 1969. Peuplement et cycle de reproduction des Oiseaux de la côte occidentale d'Afrique. *Mem. Mus. Nat. d'Histoire Naturelle* Ser. A. Zool. 57: 1-312.

N'dang'ang'a & sande. MPH

Nikolaus, G. 1987. Distribution Atlas of Sudan's Birds with Notes on Habitat and Status. Bonner Zoologische Monographien, Nr. 25. Bonn.

Nikolaus, G. 1989. Birds of South Sudan. *Scopus* Special Supplement No.3. EANHS, Nairobi.

Northern Bald Ibis Conservation Project in Morocco. 2014. Ibis gets royal visit. Blog posted on 21 March 2014. http://northernbaldibis.blogspot.co.uk/.

Oettle, G.J. White Stork became resident in the Johannesburg CBD in 2-13. Ornithological Observations, Vol. 5:80.

Overdijk, O., Marion, L. & Sall, M.A. 2002. *Spoonbill count on the Banc d'Arguin, Mauritania, January-February 2001*. WIWO-report. PNBA & WIWO, Nouakchott-Zeist.

Overdijk, O. & Zwart, F. In prep. In 'Proceedings of the fourth Eurosite Spoonbill Workshop, NL-Texel, April 2002'.

Parker, I.S.C. 1984. Shoebill *Balaeniceps rex* and Wattled Crane *Grus carunculatus* in the Moyowosi swamp, Tanzania. *Scopus* 8:24-25.

Parker, V. 1999. *The atlas of birds of Sul do Save, southern Mozambique*. Avian Demography Unit and Endangered Wildlife Trust, Cape Town and Johannesburg.

Parker, V. 2005. Central Moz

Parker, V. *In litt*. 1999. Information provided as a contribution to species accounts in the consultation draft of the Atlas of Wader Populations in Africa and Western Eurasia phase I. International Wader Study Group.

Penry, H. 1994. *The Bird Atlas of Botswana*. University of Natal Press, Pietermaritzburg.

Perennou, C.P., Mundkur, T. and Scott, D.A. 1994. *The Asian Waterfowl Census 1987-1991: distribution and status of Asian waterfowl*. IWRB Spec. Publ. No. 24 / AWB Spec. Publ. No. 86. Slimbridge, UK and Kuala Lumpur, Malaysia.

Pérez del Val, J. 2001a. Equatorial Guinea. In: L.D.C. Fishpool & M.I. Evans, eds. *Important Birds in Africa and associated islands: Priority sites for conservation*. Newbury & Cambridge, UK: Pisces Publications & BirdLife International (BirdLife Conservation Series No. 11).

Pérez de Val, J. 2001b. A survey of birds of Annobón Island, Equatorial Guinea: preliminary report. Bull ABC Vol 8 No 1: 54.

PERSGA/GEF. 2003. Status of Breeding Seabirds in the Red Sea and Gulf of Aden. PERSGA Technical Series No. 8. PERSGA, Jeddah.

PNBA. 1988. *Banc d'Arguin National Park – A Haven for Life*. PNBA/FIBA, Nouakchott/Gland.

Poillot, J-L. & Salamolard, M. 1999 (last updated). *Birds of 'French Overseas Territories'*. http://birds-of-oversea.chez.tiscali.fr/page2.html.

Project ZICOMA. 2001. Madagascar. Pp. 489-537 in L.D.C. Fishpool & M.I. Evans, eds. 2001. *Important Birds in Africa and associated islands: Priority sites for conservation*. Newbury & Cambridge, UK: Pisces Publications & BirdLife International (BirdLife Conservation Series No. 11).

Elaine Pryce. 2001. Notes on Colonies of African Skimmer *Rynchops flavirostris* on the Okavango River, 2000. *Babbler* 39.

Range Ecology Survey. 1983. Development studies in the Jonglei Canal area. *Technical assistance contract for range ecology survey, livestock investigations and water supply*. Final report. Glasgow, Khartoum & Rome: Mefit Babtie.

Robertson, P. 2001. Guinea-Bissau. Pp. 403-409 in L.D.C. Fishpool & M.I. Evans, eds. *Important Birds in Africa and associated islands: Priority sites for conservation*. Newbury & Cambridge, UK: Pisces Publications & BirdLife International (BirdLife Conservation Series No. 11).

Robertson, P. 2001. Somalia

Robertson, P. 2001. Sudan

Rocamora & Skerrett 2001 in fishpool & evans

Rocamora, G. 2004. Les oiseaux des espaces naturels remarquables de Mayotte. Rapport SEF/DAF. Collectivités de Mayotte.

Rodwell, S.P., Sauvage, A., Rumsey, S.J.R. & Bräunlich, A. 1996. An annotated check-list of the birds occurring at the Parc national des Oiseaux du Djoudj in Senegal 1984-1994. *Malimbus* 18: 74-111.

Rose, P.M. & Scott, D.A. 1994.

Rose, P.M. & Scott, D.A. 1997. Waterfowl Population Estimates – Second Edition. Wetlands International Publ. 44, Wageningen, The Netherlands.

Roux J-P (in litt)

Roxburgh, L. & Buchanan, G.M. 2010. Revising estimates of the Shoebill (*Balaeniceps rex*) population size in the Bangweulu Swamp, Zambia, through a combination of aerial surveys and habitat suitability modelling. Ostrich 81(1): 25-30.

Roxburgh, L., Stjernstedt, R., Mwizabi, D. & Droppelmann, K. 2006. Shoebill survey in Bangweulu Swamps, Zambia under the Wetlands International 'AEWA/BUWAL IWC 2006'. Technical Report to Wetlands International. Zambian Ornithological Society, Lusaka.

Safford, R. 2001.

Safford & Hawkins 2013

Scholte, P.T. 1996. Conservation status of cranes in north Cameroon and western Chad. Pp. 153-156. In: Beilfuss, R.D., Tarboton, W.R. & Gichuki, N.N. (eds). *Proceedings of the 1993 African Crane and Wetland Trainin Workshop*. International Crane Foundation, Baraboo.

Scholte, P., de Kort, S., van Weerd, M. 1999. The Birds of the Waza-Logone Area, Far North Province, Cameroon. *Malimbus* 21: 16-50.

Scholte, P. & Robertson, P. 2001.

Schrike, V., Benmergui, M., Diouf, S., Messaoud, B.O., Leray, G., Dej, F. & Trplet, P. 2004. Oiseaux d'eau dans le delta du Sénégal et ses zones envionnantes en janvier 2001. Bulletin OMPO 24:3-14.

Schrike & Triplet in litt?

Scott, D.

Scott, D. 1999.

Scott 2002 based on data from BirdLife International/EBCC 2000

Scott, D., 2002.

Scott, D.A. (ed). 1995. A Directory of Wetlands in the Middle East. IUCN, Gland, Switzerland and IWRB, Slimbridge, UK.

Scott, D.A. and Rose, P.M. 1996. *Atlas of Anatidae populations in Africa and western Eurasia*. Wetlands International Publication No. 41. Wetlands International, Wageningen, NL. 336 pp.

Sheppard, C.R.C. & Seaward, M.R.D. (eds). 1999. The Chagos Archipelago. Linnean Society Occasional Publications (2). Linnean Society, London.

Sheppard, C. & Topp, J. undated. Birds of Chagos. Natural History of the Chagos Archipelago. Friends of the Chagos, London.

Shouteden, H. 1966. La Faune Ornithologique du Burundi. Musée Royal de l'Afrique Centrale, Tervuren.

Sidaty, Z.E.O. & Daf, D.O.S.O. 2010. Nidification du Flamant nain dans l'Aftout Es Saheli, Réserve de Biosphère Transfrontière (Partie Mauritanie). Note d'information du Parc National du Diawling/PND/Février 2010.

Simmons, R.E. 2000. What is the world population of the Chestnutbanded Plover? *Bird Numbers* 9 (2):45.

Simmons, R.E., Boix-Hinzen, C., Barnes, K., Jarvis, A.M. & Robertson, A. 2001. *Important Bird Areas of Namibia. In: The Important Bird Areas of southern Africa.* Barnes, K.N. (ed.) pp. 295-332. BirdLife South Africa, Johannesburg.

RE Simmons1*, A Sakko2, J Paterson3 and A Nzuzi. 2006. Birds and conservation significance of the Namib Desert's least known coastal wetlands: Baia and Ilha dos Tigres, Angola. *African Journal of Marine Science 2006, 28(3&4): 713–717.*

Simmons & Roux 2001: Lanioturdus 34:14-18.

Skerrett, A. 1996. ABC.

Skerrett, A., Bullock, I. & Disley, T. 2001. *Birds of Seychelles*. Christopher Helm, London.

Skinner, N.J. 1997. The breeding season of birds in Botswana. III Non-passerine families (Ostrich – Skimmer). *Babbler* 32:10-23.

Smith, K.D. 1953. Off-season seabird distribution on the Eritrean coast, Red Sea. *Ibis* 89: 251-253.

Snow, D.W. & Perrins, C.M. (1998). *The Birds of the Western Palearctic. Concise Edition. Volume 1: Non-Passerines*. Oxford University Press, Oxford & New York. 1008 pp.

Steele WK, Hockey PAR 1990 Population size, distribution and dispersal of Kelp Gulls in the southwestern Cape, South Africa. *Ostrich* 61:97-106

Stronach, B.W.H. 1968. The Chagana heronry in western Tanzania. *Ibis* 110: 345-348.

Stroud et al.

Symens, P. 1999. Breeding seabirds of the Chagos archipelago. In: Sheppard. C.R.C & Seaward, M.R.D. 1999. *Ecology of the Chagos Archipelago*. Linnean Society Occasional Publications 2, Linnean Society, London.

Taylor 2000. Bittern. In Barnes Eskom

Thévenot, M., Vernon, R. & Bergier, P. 2003. *The Birds of Morocco: an annotated Checklist*. BOU Checklist No. 20, Tring.

Thibault, J.C. and Guyst, I. 1993. *Livre rouge des oiseaux menacés des regions Francaises d'outre mer*. ICBP Monograph No. 5. CIPO, Saint-Claude, France.

Taylor, P.B. & Perlo, B. van.

Tiwari, J. In prep. Study of Avi-fauna (Birdlife) of the Seawater Farms Eritrea and it's environs.

Tiwari, J. *In litt*. E-mail correspondence 2002.

Toschi, A. 1969. *Introduczione alla Ornitologia della Libia*. Laboratorio di Zoologia Applicata alla Caccia Bologna, Supplemento alle Ricerche di Zoologia applicata alla Caccia Vol. VI No. 1.

Tree, A.J. 1997. Species texts for Avocet *Recurvirostra avosetta,* Blackwinged Stilt *Himantopus himantopus* and African Skimmer *Rynchops flavirostris*. In *The Atlas of Southern African birds. Volume 1, Non-Passerines*. Harrison, J.A., Allan, D.G., Underhill, L.G., Herremans, M., Tree, A.J., Parker, V. & Brown, C.J. (eds). BirdLife South Africa, Johannesburg.

Tree, A.J. & Klages, N.T.W. In press. Present status, biometrics, and moult of the South African population of Roseate Tern. *Ostrich*.

Trolliet, B. & Fouquet, M. 2001. La population ouest-africaine du Flamant nain Phoeniconaias minor: effectifs, reproduction et isolement. *Malimbus* 23(2): 87-92.

Tyler, S.J. 2001. A review of waterbird counts in Botswana 1991-2000. *Babbler* Special Supplement No. 1

Tyler 2011.

Tyler, S.J. &Stone, J.R. 2000. African Skimmers *Rynchops flavirostris* in Botswana. *Babbler* 37.

Tyler, S.J., Tyler, L., Orchard, C. & Orchard, D. 2002. A visit to Xaxanaka and Gadikwe 'heronries' in September 2001. *Babbler* 40: 18-22

Tyler, S.J. (compiler) 2012. International Single Species Action Plan for the Conservation of the Slaty Egret (*Egretta vinaceigula*). AEWA Technical Series No. XX. Bonn, Germany.

Underhill, L.G. Tree, A.J., Oschadleus, H.D. & Parker, V. 1999. *Review of Ring Recoveries of Waterbirds in Southern Africa*. Cape Town: Avian Demography Unit, University of Cape Town.

Urban, E.K. 1996. Status of cranes in Africa, 1994. Pages 53-59. In R. Beilfuss, W. Tarboton & N. Gichuki (eds.) *Proceedings of the 1993 African Crane and Wetland Training Workshop*. International Crane Foundation, Baraboo, Wisconsin.

Urban EK, Fry CH, Keith S (Eds) 1986 *The birds of Africa*. Vol. 2. Academic Press, London.

Van Assche, P. 1954. Broedvogels in Kasai: Thalassornis leuconotus. *Wielewaal* 20: 323.

Veen, J., Peeters, J., Leopold, M., van Damme, C. & Veen, T. 2002. Effecten van visserij op natuurwaarden langs de kust van West Afrika: visetende vogels als graadmeters voor de kwaliteit van het mariene milieu. ALTERRA report, Wageningen, The Netherlands.

Vesey-Fitzgerald, D. 1957. The breeding of the White Pelican *Pelicanus onocrotalus* in the Rukwa Valley, Tanganyika. Bull. B.O.C. 77:127-128.

Wilfred Ver… Cranw news sep 2008 re breeding flamingos Etosha

Vial, C. 1994. The influence and effects of disturbance on the distribution, nest ecology, breeding biology and reproductive success of the African Skimmer *Rynchops flavirostris* in the Panhandle of the Okavango Delta. Unpubl. MS, Conservation International, Maun, Botswana.

Viellard. J. (1972). Recensement et statut des populations d'Anatides du bassin tchadien. Cah. O.R.S.T.O.M., *Ser. Hydrobiol*. 6(1): 85-100.

Walsh, J.F. 1985. Extension of known range of the African Black Duck Anas sparsa in West Africa. Bull. Brit. Orn. Club 105:117.

Watson, J. 1980. Distribution and nesting of the Yellow Bittern in Seychelles. *Ostrich* 51: 120-122.

Wetlands International. 2002. *Waterbird Population Estimates – Third Edition. Wetlands International Global Series No. 12*, Wageningen, The Netherlands.

Wetlands International. 2006. *Waterbird Population Estimates – Fourth Edition*. Wetlands International, Wageningen, The Netherlands.

Williams, E.T.C., Beilfuss, R. & Dodman, T. 2003. *Status Survey and Conservation Action of the Black Crowned Crane* Balearica pavonina. Wetlands International, Dakar / International Crane Foundation, Baraboo.

Williams, A.J. 1993. Distribution, status and conservation of gulls in sub-saharan Africa and the Red Sea. (Abstracts). In: Wilson, R.T. (ed.). *Birds and the African Environment: Proceedings of the Eighth Pan-African Ornithological Congress*. Annales Musée.

Williams, A.J., Siegfried, W.R., Burger, A.E., Berruti, A. 1979. The Prince Edward Islands: a sanctuary for seabirds in the Southern Ocean*. Biol. Conserv*. 15:59-71.

Williams, A.J., Steele, W.K., Cooper, J. & Crawford, R.J.M. 1990. Distribution, population size and conservation of Hartlaub's Gull *Larus hartlaubii*. *Ostrich* 61(1/2):66-76.

Williams, A.J., Borello, W.D. 1997. White Pelican. In: Harrison, J.A., Allan, D.G., Underhill, L.G., Herremans, M., Tree, A.J., Parker, V. & Brown, C.J. (eds). *The Atlas of Southern African Birds*. Vol. 1:24-25. BirdLife South Africa, Johannesburg.

WIWO/CSSL 2005

Young, H.G. & Robertson, I. 2001. The yellow-billed Duck *Anas undulata* in West Africa. *Malimbus* 23: 56-58.

Zimmerman, D.A., Turner, D.A. & Pearson, D.J. 1996. *Birds of Kenya and northern Tanzania*. Russel Friedman Books, Halfway House, South Africa.

Zinner, D. 2001. Ornithological notes from a primate survey in Eritrea. *Bull. ABC* Vol 8 No.2: 95-106.

Zwarts et al 2009. Living on edge.