

COMMON SHELDUCK

Tadorna tadorna

Subspecies:

Monotypic.

Distribution:

Palaearctic, with a somewhat fragmented breeding distribution from coastal western Europe east through southern Europe, the Middle East and central Asia to northeast China. Western populations winter south to North Africa and the Gulf. The species occurs as a vagrant south to Senegal, Ghana and Sudan.

Movements:

Partially migratory or dispersive; most northern and inland populations move southwards to winter at lower latitudes, and even within mainly sedentary populations, major moult migrations occur to favoured moulting areas where spectacular concentrations can occur. In early summer, birds from all over northwest Europe as well as some west Mediterranean breeding birds migrate to the German Wadden Sea to moult. Significant cold weather movements occur in northwest Europe, with birds moving away from the major wintering areas of the Dutch and Danish Wadden Sea to Britain and Ireland, and to a lesser extent, north and west France. Some birds also reach Iberia, North Africa and Italy during very cold winters (Ridgill & Fox, 1990).

The southern populations in the Black Sea and Caspian regions are believed to be mainly sedentary, although long-distance movements may occur during exceptionally cold weather, and moult migrations are known to occur in some areas (e.g. northwestern Iran). Birds breeding south to Romania and east in southern Siberia are migratory. Those breeding east of the Ob River are believed to join the birds in the Caspian region in winter (Cramp & Simmons, 1977). The wintering population in Egypt, which may number 10,000 birds in some years, is thought to be mainly of Turkish origin, although a recovery in Egypt of a bird ringed at Lake Tengiz, Kazakhstan (69°E), suggests that at least some of the Egyptian birds belong to the southern Siberian breeding population (Meininger & Atta, 1994). Other birds ringed at Tengiz Lake have been recovered in the Caspian region and northwestern Iran (Argyle, 1975).

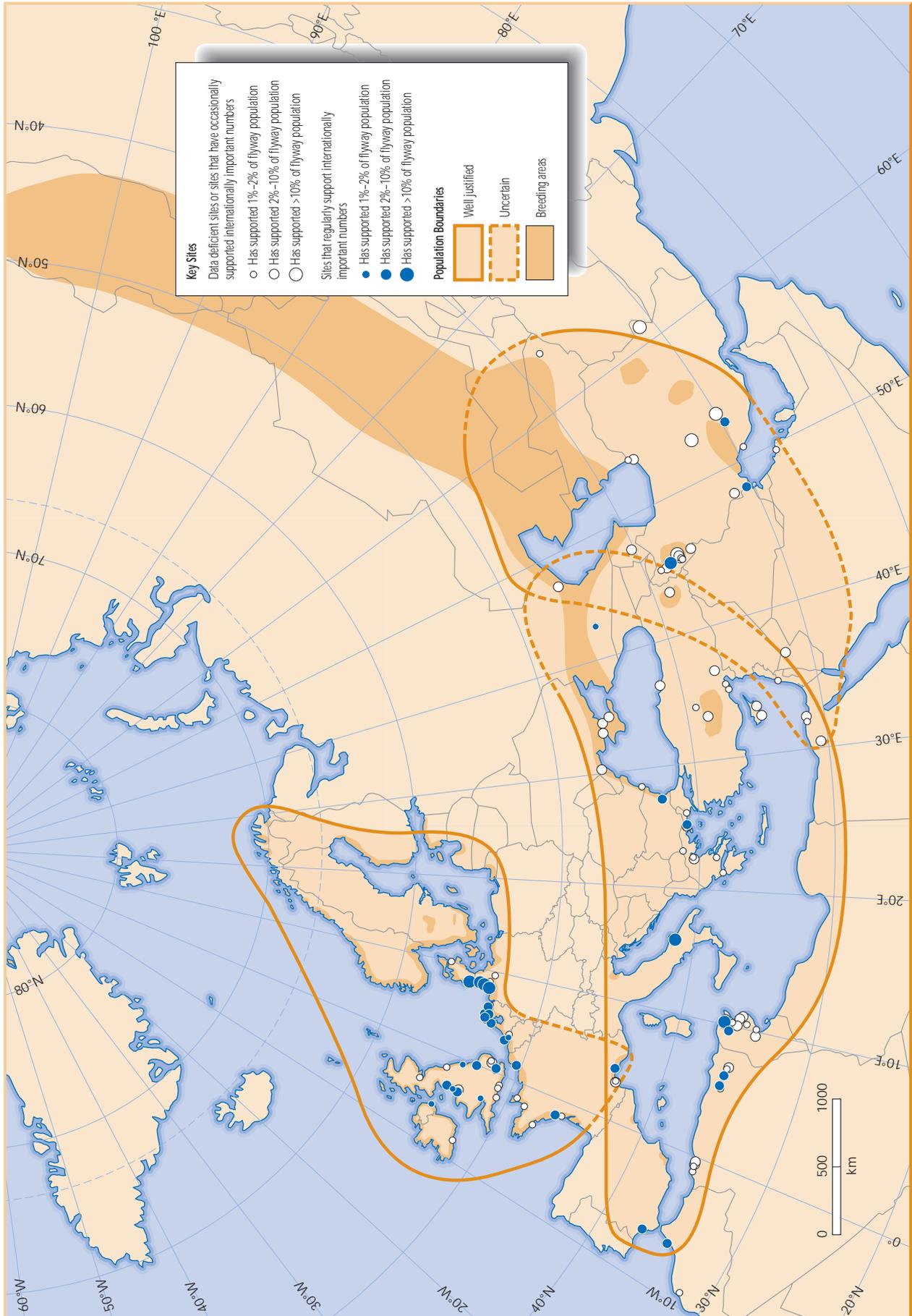
Population limits:

Only three populations are recognized in Western Eurasia: (1) a population in northwest Europe distributed around the North Sea, in the Baltic and on the Atlantic coasts of Britain, Ireland and France; (2) a Black Sea/Mediterranean population wintering south to the Nile Delta and northwest Africa; and (3) a population breeding from eastern Turkey, northwestern Iran and the Caspian region eastwards through Kazakhstan and wintering from the south Caspian through Iran and Iraq to Arabia.

Atkinson-Willes (1976) and Scott (1980) recognized only two populations in Europe, one in northwest Europe and one in the Black Sea/Mediterranean region. However, Ruger *et al.* (1986), following Walmsley (1984), considered the birds in the west Mediterranean (Italy, France, Spain and the Maghreb) to be a separate population from those in the east Mediterranean and Black Sea. Monval & Pirot (1989) thought that the birds breeding around the Black Sea and east Mediterranean were mainly sedentary, moving further south only during cold spells, and concluded that it was unlikely that exchanges occurred between these *T. tadorna* and those present in the west Mediterranean.

The validity of a separate west Mediterranean population is clearly questionable. On the one hand, there is a considerable amount of intermixing between the northwest European population and the west Mediterranean birds, with many of the 600 pairs breeding in Spain, southern France and Italy migrating to the Wadden Sea to moult (Walmsley, 1987), and some of the northwest European breeding birds moving into the west Mediterranean during severe winters. On the other hand, there is now evidence which suggests that large numbers of birds from the Black Sea/east Mediterranean move into the west Mediterranean during severe winters. The large numbers of wintering *T. tadorna* in Algeria in recent years (up to 20,000) are more likely to be birds forced out of the Black Sea region by hard weather, than birds from hitherto unknown breeding areas in northwest Africa. Such hard weather movements would be consistent with the unprecedented series of harsh winters that have prevailed in the Black Sea during the 1990s, and would explain why recent mid-winter counts in the northern Black

COMMON SHELDUCK *Tadorna tadorna*



Sea have been considerably lower than the numbers believed to be present during the more normal winters of the 1980s (Monval & Pirot, 1989).

Tadorna tadorna breeding in the west Mediterranean should perhaps be treated as part of the northwest European population, while many of the wintering birds almost certainly belong to the Black Sea/east Mediterranean population. Since the number of birds breeding in the west Mediterranean is relatively small in relation to the wintering population, the west Mediterranean birds are here included within a single large Black Sea/Mediterranean population.

There is also likely to be a considerable amount of inter-mixing between birds in the Black Sea/east Mediterranean region and those in Southwest Asia. There are no major gaps in the breeding range of *T. tadorna* between the Black Sea and the Caspian Sea, and evidence from ringing suggests that some of the birds wintering in Egypt originate from breeding areas east of the Caspian. Occasionally some birds are found as far south as Jeddah in the central Red Sea (S. Newton, *in litt.*). As for many species of Anatidae, the distinction between a Black Sea/Mediterranean population and a Southwest Asian population is maintained primarily for practical reasons, with the dividing line following the default line through the Caucasus, eastern Turkey and Syria.

Population size:

- **Northwest Europe: 300,000 (see Annex 1). 1% level 3,000.**
- **Black Sea/Mediterranean: 75,000 (see Annex 1). 1% level 750.**
- **Western Asia/Caspian/Middle East: 80,000 (Perennou *et al.*, 1994). 1% level 800.**

The estimate of 80,000 (Perennou *et al.*, 1994) was based on counts from 1987 to 1991; in recent years, the totals counts have ranged between 55,000 and 60,000 birds, and thus agree well with the original estimate.

Habitat/ecology:

Tadorna tadorna is a bird of coastal mudflats, estuaries and brackish to saline lakes, generally occurring in saline waters, but often intentionally seeking fresh water in order to drink. In northwest Europe, *T. tadorna* is a maritime species largely confined to sheltered coasts and estuaries. Almost the entire northwest European population gathers in the Wadden Sea to moult, along with some birds from the west Mediterranean. Immatures arrive from June and adults from July. During the wing moult, the birds are flightless for 25–31 days. Birds from breeding areas to the west of the moulting area return to their breeding grounds after the moult, between October and December; birds from breeding areas to the east of the moulting area remain throughout the winter in the southern North Sea and return to their breeding grounds in March. Birds from the west Mediterranean return to their breeding grounds in November, via the Rhone and the Rhine. The moulting behaviour of birds breeding further east is poorly understood. No major moult migrations have been documented, but very large numbers of birds gather at Lake Uromiyeh in northwestern Iran to moult, and these presumably include migrants from central Asia as well as local breeding birds. Birds wintering in Algeria and Tunisia begin to arrive in September, and reach a peak in November, December and January.

Conservation status:

The northwest European population of *T. tadorna* increased by at least 50% between the late 1960s and the late 1980s. However, in recent years the rate of increase has slowed down, and the population may now be stabilizing (Rose, 1995).

Numbers wintering in the west Mediterranean increased considerably between 1967 and 1987, but have started to stabilize since then (Rose, 1995). Numbers wintering in the Black Sea/east Mediterranean have increased significantly in the last ten years, although over the last 20 years there has been stability or even a slow decline in numbers (Rose, 1995). Much of the increase in the west Mediterranean may have been a result of increased immigration of birds from the Black Sea region, especially during the long series of cold winters in recent years.

The population in Southwest Asia appears to be increasing. Flint and Krivenko (1990) report a general increase in numbers of *T. tadorna* in the former USSR, while Krivenko (1993) reports an increase in the numbers of birds at the end of the breeding season in Kazakhstan and the Caspian region between 1972 and 1989. The number of birds wintering in Iran increased by over 50% between the early 1970s and the late 1980s (Perennou *et al.*, 1994). As these birds account for almost half of the Southwest Asian population, it seems likely that the population as a whole has been increasing.

Network of key sites:

All three populations of *T. tadorna* are dispersed while breeding but come together in autumn, spring and during moult at a few extremely important sites. In winter they are more dispersed and rather mobile but nevertheless the species remains appropriate for the development of a key sites network. The northwest European population stages and moults in the Wadden Sea and to a lesser extent at Bridgwater Bay in the United Kingdom. Manych-Godilo Lakes in the Caucasus can have over 100,000 individuals after moult when 22,000 are present. This autumn concentration must include both Caspian and Black Sea/east Mediterranean wintering birds, and it is likely that other major moulting sites still exist for the Black Sea/Mediterranean population. Up to 35,000 (40% of the population) *T. tadorna* moult at Lake Uromiyeh in Iran where numbers can nearly double in exceptional winters. Networks of key wintering sites are fairly extensive for all three populations with 42 key sites listed for northwest Europe, 52 for the Black Sea/Mediterranean and 25 for the Caspian.

Protection status of key sites:

Most of the important sites for the northwest European population are protected and so are most of the major sites for the Southwest Asian population, including the moulting area at Lake Uromiyeh in Iran. Only wintering sites are well known for the Black Sea/Mediterranean population, and 20 of the 52 key wintering sites here are protected, including the most important.

SPUR-WINGED GOOSE

Plectropterus gambensis

Subspecies:

Polytypic. Two subspecies are recognized: *P. g. gambensis* from Gambia to Sudan and south to Zambia, and *P. g. niger* in southern Africa. The two subspecies are distributed north and south of the Zambezi River, but intermediates are frequent in the border region. The situation suggests that they were formerly isolated and have quite recently come into secondary contact (Snow, 1978).

Distribution:

Confined to the Afrotropical Region. *P. g. gambensis* occurs from Gambia east to Ethiopia and south to Angola and the Zambezi River; *P. g. niger* occurs in southern Africa from Namibia and Zimbabwe to Cape Province, South Africa. *P. g. gambensis* breeds north along the Nile to the region of Khartoum, and has been recorded as far north as Abou Simbel in Egypt, but the records of birds in Egypt may relate to semi-domesticated individuals (Goodman & Meininger, 1989). In West Africa, the species is very uncommon south of 9°N in Ivory Coast, Ghana, Togo and Benin (J.F. Walsh, *in litt.*).

Movements:

At least partially migratory over most of its range, undertaking marked seasonal movements (of up to several hundred kilometres) in many parts of its range. These movements are poorly understood, but appear to be mostly related with the availability of water. The species is mainly a dry season visitor to Gambia. Seasonal influxes occur in the Senegal Delta in January, in northern Togo in December–April (dry season), at Lake Chad in February–May, and in the Luangwa Valley, Zambia, chiefly in October–March. Moulting migrations have been observed in the Niger Delta, Senegal Delta and South Africa. Birds ringed in South Africa have been recovered up to 570 km away.

Population limits:

The nominate form is very widely distributed in western, central and eastern Africa, and there do not appear to be any major gaps in its distribution. Because of the extent of movements shown by the species, the entire population of this subspecies is probably best treated, biologically, as a single, very large population. However, for practical reasons it is proposed that the West African birds (east to Chad) be treated as a separate population, although it is acknowledged that there may be a considerable amount of interchange between this population and birds in central and eastern Africa. Three populations are therefore recognized: the entire population of the subspecies *niger* in southern Africa, and two populations of the nominate form, one in West Africa (east to Chad), and one in eastern and south-central Africa (south to the Zambezi).

Population size:

- **West Africa (*gambensis*): 50,000 (Perennou, 1991a). 1% level 500.**

The maximum mid-winter count in West Africa was 38,000 in 1987, but the maximum count in recent years has not exceeded 5,000. Concentrations of over 10,000 were recorded in the Senegal Delta in the 1970s (Tréca, 1978), but numbers have been much lower since then, with the recent maximum in Djoudj National Park being only 2,470 in January 1988 (P. Yésou, *in litt.*). Other high counts have included up to 25,000 at Lake Maga in Cameroon, up to 1,500 in the Central Niger Delta and 1,850 at Lac d'Aleg, Mauritania, in January 1996. Flocks of up to 500 have been recorded along the Middle River in Gambia (Jensen & Kirkeby, 1980), and flocks of up to 300 have been recorded during the dry season in northern Togo (Cheke & Walsh, *in prep.*). Some 440 were observed at Lagoa de Cufada, Guinea-Bissau, in February 1990 (Scott & Pineau, 1990).

- **Eastern and south-central Africa (*gambensis*): 200,000–300,000. Provisional numerical criterion 2,500.**

Frequent to locally abundant in Ethiopia (Urban & Brown, 1971), widespread and locally numerous in Kenya, Tanzania and Uganda (Britton, 1980), widespread in rather small numbers (generally in flocks of less than 50 birds) in Malawi (Benson & Benson, 1977), and widespread and common in Zambia (Benson *et al.*, 1971). Only 1,214 were recorded in Tanzania during very extensive waterfowl counts in

SPUR-WINGED GOOSE *Plectropterus gambensis*



January 1995, although concentrations of up to 10,000 have been recorded in the south of the country in recent years (N. Baker, *in litt.*). Recent counts in Zambia have included 8,215 at Kafue Flats in January 1994 and 2,133 in Bangweulu Swamps in July 1994. The highest count of *gambensis* during the African Waterfowl Census (1991–94) was 9,572 in January 1994.

• **Southern Africa (*niger*): 50,000–100,000. Provisional numerical criterion 750.**

Seasonally common to very common on most large inland waters almost throughout its range (Sinclair *et al.*, 1993). In Botswana, it is a very common resident on the floodplains in the north of the country, and common at wetlands south to Lake Ngami (Newman, 1989; Penry, 1994), while in Zimbabwe, it is one of the commonest of the Anatidae (D.V. Rockingham-Gill, *in litt.*). About 2,000 moulting birds have been recorded at Barberspan, western Transvaal, in June–August. The highest count of *niger* during the African Waterfowl Census (1991–94) was 8,999 in 1993. The population seems unlikely to exceed 100,000.

Habitat/ecology:

P. gambensis is found in a wide range of habitats, occurring on most kinds of fresh water (marshes, grassy swamps, rivers, lakes, reservoirs *etc.*), particularly where these are surrounded by scattered trees and near grassland or arable land. The species often feeds well away from open water. In the dry season, large flocks gather at permanent water, these often undergoing the wing moult, e.g. in the Central Niger Delta and Senegal Delta. In West Africa, it breeds during the late wet season (J.F. Walsh, *in litt.*).

Conservation status:

The West African population of *gambensis* is said to have been affected by desiccation of the Sahel zone (del Hoyo *et al.*, 1992), and may now be decreasing.

Network of key sites:

Similar to many other species of endemic African Anatidae, *P. gambensis* has a very inadequate key sites networks in southern and eastern Africa. This could be because it is very dispersed, because information is lacking, because censuses are undertaken in inappropriate seasons or because the population estimate, and hence the threshold for selection, is too high. As for all other African Anatidae much more quantitative site based distribution data is required for all times of year. In West Africa 22 key sites can be selected on the basis of December–February data and the few counts available from other months suggest that the species probably occurs in large concentrations in all seasons. The largest count recorded is of 22,000 at Lac Maga in Cameroon which also has the highest average annual maximum of 7000 individuals. The key wintering sites network is probably quite complete, but year to year variations in the suitability of the sites makes it very hard to predict the value of the network in advance.

Protection status of key sites:

Only six key sites are known to be protected.

HARTLAUB'S DUCK

Pteronetta hartlaubii

Subspecies:

Monotypic. Birds with extensive white on the head from east-central Africa (mainly Zaire) were formerly considered as a subspecies, *albifrons*, but this variation is no longer considered to be geographically discrete.

Distribution:

Confined to the Afrotropical Region, occurring in equatorial West and central Africa from Sierra Leone and Guinea east to Ghana, and from Nigeria east to extreme southwest Sudan and south to central Zaire. There are no records for Benin or Togo (J.F. Walsh, *in litt.*).

Movements:

As far as is known, the species is sedentary throughout its range, with only local movements recorded (Brown *et al.*, 1982). It is said to be resident in Cameroon (Louette, 1981), Ghana (Grimes, 1987) and Nigeria (Elgood, 1982).

Population limits:

The only major break in the historical distribution of the species is between the forested regions of western West Africa (Guinea and Sierra Leone to Ghana) and those extending from Nigeria east into central Africa, and only two populations are therefore recognized. However, severe deforestation and resulting fragmentation of forest blocks during the present century has undoubtedly broken up this sedentary species into many more isolated population 'units' which, from a conservation viewpoint, should perhaps merit treatment as separate populations. Because of the paucity of information available on the present distribution and abundance of the species, only the two historical population units are recognized.

Population size:

- **Central Africa (west to Nigeria): 10,000–50,000. Provisional numerical criterion 300.**

In central Africa, the species appears to be widespread and locally quite numerous throughout its range, and is described as common by Brown *et al.* (1982). It seems to be most numerous in Cameroon, Gabon, Congo and Zaire. Until quite recently, it was well distributed and not uncommon in Nigeria (Elgood, 1982), but recent reports suggest that it is now uncommon to rare there (J.F. Walsh, *in litt.*).

- **West Africa (Guinea to Ghana): Probably less than 1,000 (J.F. Walsh, *in litt.*). Provisional numerical criterion 10.**

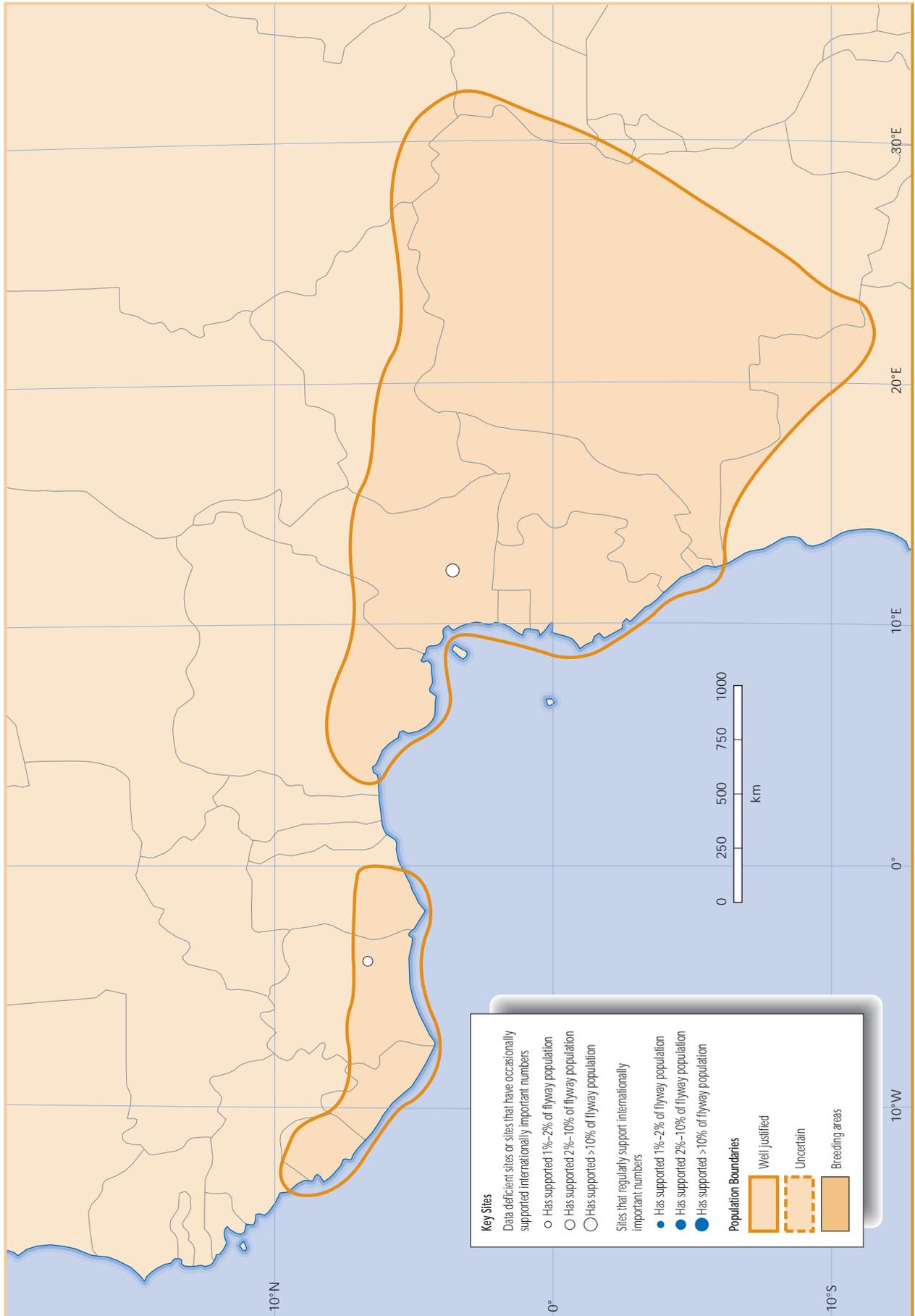
Pteronetta hartlaubii is now very scarce throughout its range in West Africa. It is now rare throughout Ghana, and is an uncommon breeding bird in Ivory Coast, Liberia and Sierra Leone. The only published records for Guinea are of two pairs at 8°N in March 1984 and 1985 (J.F. Walsh, *in litt.*). The largest concentration reported in West Africa in recent years was a flock of at least 30 plus a further 39 birds in small groups on the Comoe River between 8°N and 8.30°N in Ivory Coast (J.F. Walsh, *in litt.*). J.F. Walsh (*in litt.*) has recently estimated the West African population at probably less than 1,000 birds.

Only a few individuals have been recorded during the African Waterfowl Census in recent years (maximum of five in 1994), but very few counts have been undertaken within the species' range. Callaghan and Green (1993) state that the population is likely to be in the range 10,000–100,000 individuals.

Habitat/ecology:

P. hartlaubii is the only African species of Anatidae whose distribution is confined to the Guinea forests, with outlying populations along rivers in wooded savanna north and south of the main forest block (Snow, 1978). It is a bird of secluded pools, streams and small rivers in lowland rainforest, broad gallery forest and well-wooded savannah. It is normally found in pairs, but small flocks of up to about 15 birds

HARTLAUB'S DUCK *Pteronetta hartlaubii*



have been reported on larger, more open rivers, and are presumed to be moult gatherings. The breeding season seems to be during August–November, when ducklings have been seen in the wild, but no wild nest has yet been described.

Conservation status:

Pteronetta hartlaubii is listed as 'near-threatened' by Green (1996), and as 'vulnerable' by Ellis-Joseph *et al.* (1992), who state that the primary threat is habitat loss due to forest destruction. Major declines have been reported in West Africa, but further east, the extent and rate of any decline are unclear. Elgood (1982) and Elgood *et al.* (1994) noted that a decline in numbers had occurred in Nigeria, and attributed this to habitat destruction. Grimes (1987) described *P. hartlaubii* as not uncommon along the major rivers in Ghana (Ancobra, Bia, Prah, Offin and Tano), but by 1990 it had disappeared from the north of the country (southern reaches of Black Volta and Tain River) and had become very scarce further south (J.F. Walsh, *in litt.*). Recent declines have also been noted in Ivory Coast (J.F. Walsh, *in litt.*). Numbers seem certain to be declining elsewhere because of the dependence of the species on rainforest and the rapid rate at which forests are being destroyed almost throughout its range.

Network of key sites:

One untraceable set of counts from Cameroon lists 289 *P. hartlaubii* in January 1987 and there are recent observations from the Comoe River in Cote d'Ivoire (J.F. Walsh, *in litt.*). Almost no other quantitative information exists for any of the range of this species, so its status is totally unknown.

COMB DUCK (KNOB-BILLED GOOSE)

Sarkidiornis melanotos

Subspecies:

Polytypic. Two subspecies are recognized: the nominate form in Africa and southern Asia, and *S. m. sylvicola* in tropical South America (sometimes considered a separate species).

Distribution:

Pantropical, occurring in tropical South America, sub-Saharan Africa and southern Asia (Pakistan to south China). In Africa, the nominate form occurs widely throughout the continent south of the Sahara, except in densely forested and arid areas. It also occurs in Madagascar. It is locally common to abundant on well-watered savannas throughout its range.

Movements:

Primarily an intra-African migrant, although some populations, including the Madagascar population, are mainly sedentary. A large part of the African population is highly migratory, undertaking lengthy trans-equatorial migrations in response to seasonal rains and changing water conditions. This mobility probably accounts for the fact that no geographical variation has been detected in the Old World part of the species' range (Snow, 1978). In southern Africa, the species is mainly a summer (wet season) visitor (Sinclair *et al.*, 1993). Birds ringed in Zimbabwe have been recovered in Mozambique, Zambia, Zaire, northern Tanzania, Chad (3,879 km) and Sudan (3,600 km). In Zambia, it is essentially a rains visitor, with maximum numbers occurring in March and April after breeding, and minima in June–September (D.R. Aspinwall, *in litt.*). Large concentrations of non-breeding birds have been observed in Zambia, and also in Zaire and Kenya. The species is a common visitor to southern Sudan, mainly on passage at the start and at the end of the rains (Lynes, 1925), and is sometimes an abundant visitor to southern Somalia, although there are no breeding records from this area (Ash & Miskell, 1983). Flocks have been observed flying north up Lake Albert in June, suggesting that the western rift valley may be a migration route for this species into Sudan (R.J. Douthwaite, *in litt.*). In Eritrea, the species is a common visitor to the western plains during the rains (July–December) (Smith, 1957).

In West Africa, *S. melanotos* is a seasonal visitor to the lower Senegal region, probably from breeding quarters in more humid country to the southeast, although breeding has been recorded at Lac de Gueirs in northern Senegal (Tréca & Rouchouse, 1990). A bird ringed in northwestern Senegal has been recovered 900 km away in Mali. The species is a common dry season visitor to Gambia, where concentrations of over 1,000 have been recorded in March, but it is not known to breed (Gore, 1981). In northern Togo, *S. melanotos* is a common dry season visitor (December to April), occasionally extending south to about 9°40'N (J.F. Walsh, *in litt.*). Large concentrations of non-breeding birds have been observed in the Senegal Delta, in the Central Niger Delta in Mali and in Chad. In Cameroon, the species occurs as a common non-breeding visitor to the south during the rainy season (Louette, 1981).

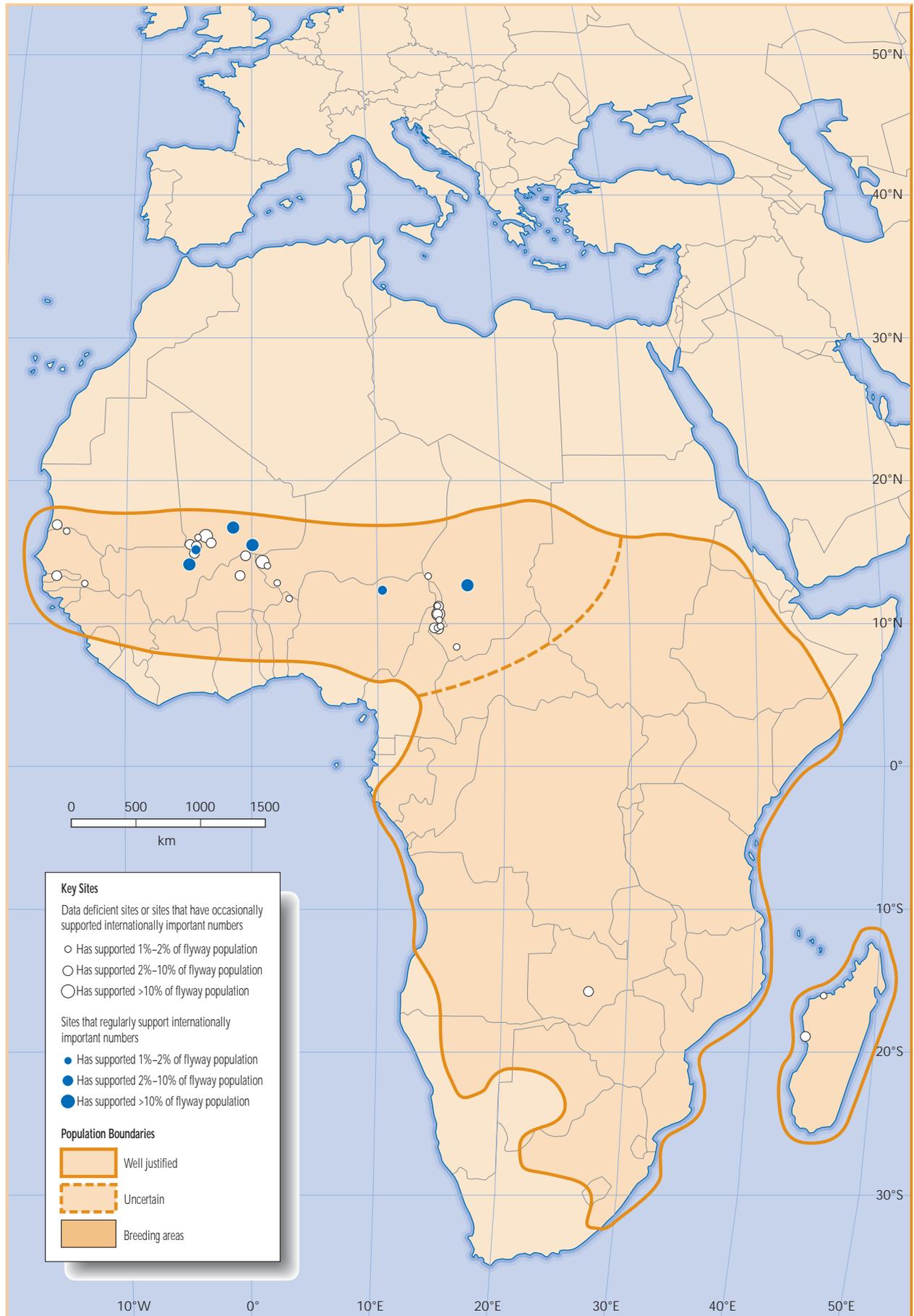
Population limits:

S. melanotos is very widely distributed over Africa south of the Sahara, with no apparent major gaps in its distribution, and shows a high degree of mobility. Thus, the entire African population is probably best treated, biologically, as a single, very large population. However, for practical reasons it is proposed that the West African birds (east to the Chad basin) be treated as a separate population, although it is acknowledged that there is probably a considerable amount of interchange between this population and birds in central and eastern Africa. *S. melanotos* is said to be mainly sedentary in Madagascar, and there is no evidence of interchange with the African population. Thus three populations are recognized: a West African population (east to Chad); an eastern and southern African population; and a Madagascar population.

Population size:

- **West Africa: 50,000 (Perennou, 1991a). 1% level 500.**

This estimate of 50,000 (Perennou, 1991a & 1991b) may be too low. W.C. Mullié (*in litt.*) has suggested that 60,000 may be more realistic, and that the population may be as high as 70,000–75,000. Up to 32,800 have been counted during mid-winter waterfowl censuses in West Africa (maximum in 1987).



Notable counts have included: 2,920 at Lac d'Aleg, Mauritania, in January 1996, 1,250 at Jakhaly Swamp, Gambia, in March 1975 (Jensen & Kirkeby, 1980); up to 790 in Djoudj National Park in the Senegal Delta (P. Yésou, *in litt.*); 2,500 in the Central Niger Delta, Mali, in January 1973 and 15,000 in January 1978; 7,770 along the Niger River between Labezanga and Niamey, Niger, in January 1995 (W.C. Mullié, *in litt.*); and over 600 on the Logone floodplain in Cameroon in February 1995 (Scholte *et al.*, 1995).

• **Eastern and southern Africa: 500,000–1,000,000. Provisional numerical criterion 7,500.**

Generally widespread and locally abundant; described as a common summer visitor to the western plains of Eritrea (Smith, 1957), frequent to locally abundant in Ethiopia (Urban & Brown, 1971), sometimes abundant in Somalia (Ash & Miskell, 1983), widespread and fairly common in Kenya, Tanzania and Uganda (Britton, 1980), common in flocks of up to 50 in Malawi (Benson & Benson, 1977), widespread and common in Zambia, especially in the west (Benson *et al.*, 1971), common throughout Zimbabwe, often in concentrations of several hundred birds (D.V. Rockingham-Gill, *in litt.*), and fairly common in Botswana (Newman, 1989). Some 20,435 were recorded at Kafue Flats, Zambia, in January 1994. A total of 357 was recorded in Tanzania during very extensive waterfowl counts in January 1995. The highest count in eastern and southern Africa during the African Waterfowl Census (1991–94) was 21,674 in 1994. It has been suggested that the total population in eastern and southern Africa probably exceeds 1,000,000 (D.R. Aspinwall, *in litt.*).

• **Madagascar: 10,000–25,000. Provisional numerical criterion 175.**

According to Langrand (1990), widespread throughout Madagascar in small numbers, though abundant in places, especially in the west and north (e.g. at Lake Bemamba, the Soalala lakes and marshes, and Betsiboka River). Some 1000 were recorded at Lake Bemamba in June 1993 (Young *et al.*, 1993) and 258 at Lake Amboromalandy in October 1993 (F. Hawkins, *in litt.*). Up to 865 have been recorded in recent waterfowl censuses in Madagascar.

Habitat/ecology:

Sarkidiornis melanotos is a bird of lowland tropical swamps, lakes and rivers in open, lightly wooded country (marshes, temporary pans in woodland, woodland-fringed lagoons in inundated floodplains and river deltas). Breeding generally occurs during the rainy season. The species needs trees for nesting, but prefers savanna country rather than thick forest, and in many parts of its range breeds mainly in areas of temporary inundation. In Zimbabwe, it has been recorded at gravel pits in woodland. There is marked segregation in feeding areas between the sexes; females and juveniles feed largely on ripening grass seeds, while males feed largely on aquatic plant seeds, especially water lilies, which appear in the wake of the rains (R.J. Douthwaite, *in litt.*). *S. melanotos* usually forages in small groups, but occasionally forms large flocks, especially during the late dry season. After the first rains, large flocks may gather to feed on germinating wheat from crop residue (D.V. Rockingham-Gill, *in litt.*).

Conservation status:

Populations on the mainland of Africa are thought to be stable, although a slight decrease has taken place in Zimbabwe in the last ten years (D.V. Rockingham-Gill, *in litt.*). In Madagascar, the species has become rare on Lake Alaotra and generally in the east, due to hunting pressure (Langrand, 1990). *S. melanotos* is trapped throughout Madagascar and persecuted when feeding in rice fields. It is often found on sale in markets (H.G. Young, *in litt.*).

Network of key sites:

Much more information and research is necessary in southern/eastern Africa and Madagascar before the one and two key sites respectively can be supplemented to provide the basis of a key sites network. The 33 key sites selected for West Africa on the basis of December to February censuses do provide a rudimentary key sites network but its value will vary between years according to water distribution. Nothing is known about key sites for other months. Highest numbers are most regularly counted at Lac Fitri and Mare de Katoa in Tchad but the highest recorded concentration is of 15,000 in the Southern Inner Niger Delta during 1978.

Protection status of key sites:

Only a few of the key wintering sites in West Africa are protected.

AFRICAN PYGMY-GOOSE

Nettapus auritus

Subspecies:

Monotypic. Madagascar birds are not distinguishable from African birds.

Distribution:

Confined to the Afrotropical Region. The species occurs widely in Africa south of the Sahara from Senegal and Ethiopia southwards, and also in Madagascar. It formerly occurred in Zanzibar and is probably still a resident in Pemba, in small numbers (Pakenham, 1979). The distribution over its entire range is sporadic, dictated by rainfall and availability of suitable habitat.

Movements:

Chiefly sedentary; the species is not known to be a long-distance migrant, but in regions with seasonal rainfall, it makes nomadic movements during the dry season in response to changing water levels. Some seasonal movements have been recorded in West Africa; it is resident in northern Ghana, Togo and Benin, but occurs in the coastal zone only during the dry season (J.F. Walsh, *in litt.*), while in Chad, it seems to be entirely migratory (Salvan, 1967). In Sudan, most records and numbers are in the rainy season (Nikolaus, 1987). It is partly migratory in northern Botswana, the highest numbers occurring in December (during the breeding season), and lowest in April–May; movements in this area are thought to be linked with the moult (Douthwaite, 1980). The population in Madagascar appears to be mainly sedentary but occasionally it is highly dispersive when west coast breeding lakes become too saline (or dry out) during March–October.

Population limits:

The species is very widely distributed over Africa south of the Sahara, and there do not appear to be any major gaps in its distribution. However, for practical reasons it is proposed that the West African birds be treated as a separate population, although it is acknowledged that there is probably some interchange between this population and birds in central and eastern Africa. The Madagascar population is mainly sedentary, and there is no evidence of interchange with the African population. Thus three populations are recognized: a West African population (east to Chad); an eastern and southern African population; and a Madagascar population.

Population size:

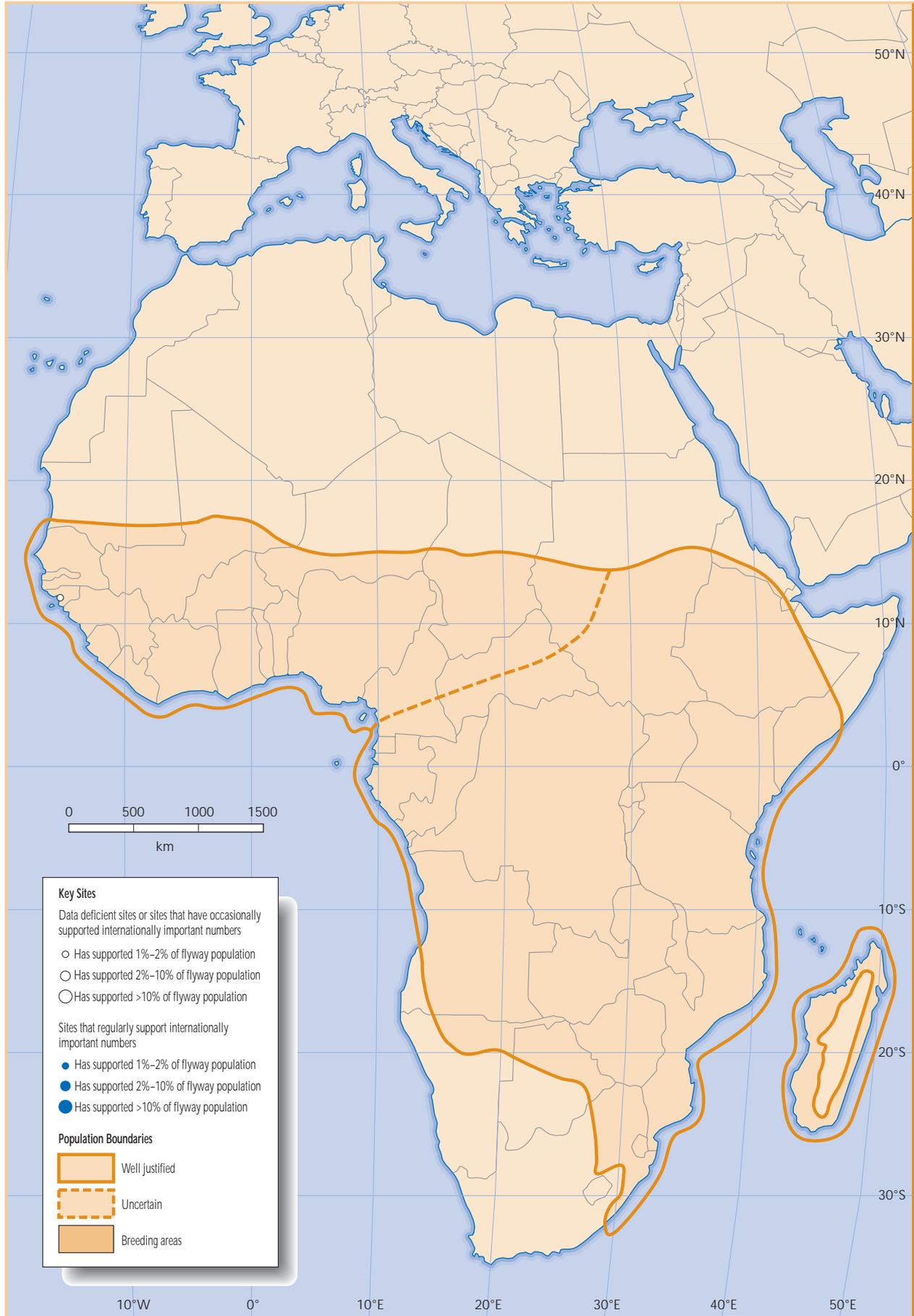
• **West Africa: 20,000–30,000. Provisional numerical criterion 250.**

Widely distributed but generally uncommon over much of the region. Formerly widespread in the Senegal Delta but now rare there (P. Yésou, *in litt.*). Said to be an uncommon resident in the Middle Valley of Gambia, occurring in concentrations of up to 30 birds (Jensen & Kirkeby, 1980), and described as not uncommon in Ghana, occurring in small groups of four to six birds (Grimes, 1987). In Nigeria, said to be widespread and not uncommon from the great rivers northwards, but uncommon in the southwest and rare in the southeast (Elgood, 1982; Elgood *et al.*, 1994). Uncommon in Cameroon, although occasionally occurring in substantial numbers, e.g. 60 at Lake Maga in January 1993 (P. Scholte, *in litt.*). One of the most important sites in West Africa is Lagoa de Cufada in Guinea-Bissau, where 250 were recorded in February 1990 (Scott & Pineau, 1990). The maximum mid-winter count in West Africa was 300 in 1975. Rose & Scott (1994) estimated the total West African population at less than 10,000, but a recent assessment suggests that the population may exceed 25,000 birds (J.F. Walsh, *in litt.*).

• **Eastern and southern Africa: 100,000–250,000. Provisional numerical criterion 1,750.**

Generally rather uncommon, but locally common to abundant; described as uncommon to frequent in Ethiopia (Urban & Brown, 1971), rather uncommon in Kenya (where mainly along the coast), Tanzania and Uganda (Britton, 1980), widespread in small numbers in Malawi (Benson & Benson, 1977) and Zambia (Benson *et al.*, 1971), locally common to very common in Botswana (Newman, 1989; Penry, 1994), and locally common throughout much of southern Africa (Sinclair *et al.*, 1993). The species is abundant at Lake Tana, Ethiopia, and in the Okavango Delta, Botswana. The population in the Okavango

AFRICAN PYGMY-GOOSE *Nettapus auritus*



Delta was estimated at 10,600 +/- 4,400 in July–October 1978, and as many as 15,000 have been recorded there more recently. Dry season flocks of up to 1,000 have been observed in north Zululand, South Africa. The population in Zimbabwe is estimated to number in the hundreds of birds (Ewbank, 1993). A total of 330 was recorded in Tanzania during very extensive waterfowl counts in January 1995. The maximum count during the African Waterfowl Census (1991–94) in eastern and southern Africa was only 542 (in 1993).

- **Madagascar: 5,000–10,000. Provisional numerical criterion 75.**

Occurs throughout Madagascar, except for the High Plateau. Common in the west, particularly at Lake Bemamba and Lake Antsamaka, in the vicinity of Morondava, and at the Soalala lakes, and in the north, e.g. at Sahaka Lake, Antsohihy and Maromandia Marshes; uncommon in the east, and rare in south and at Lake Alaotra (Langrand, 1990). Usually found in groups of 10–40, occasionally more (e.g. 120 on a pond at Morondava in October 1983). Up to 92 have been recorded during waterfowl censuses in recent years.

Habitat/ecology:

Highly aquatic, frequenting undisturbed freshwater ponds and lakes with rich emergent vegetation, especially water-lilies (*Nymphaea* spp.). In many parts of its range, and particularly in West Africa where it is uncommon, the species seems to be tied to the presence of water-lilies, although in Cameroon it also occurs in mangroves (Louette, 1981). It is semi-gregarious, normally occurring in groups of 10 to 200 birds.

Conservation status:

The species has become very rare in the Senegal Delta in recent years (P. Yésou, *in litt.*), and is becoming rare in Kenya, perhaps because of the disappearance of large water-lily beds from many wetlands (L. Bennun, *in litt.*). It is the only species of duck thought to be threatened at national level in Zimbabwe, where it is under pressure from the destruction of aquatic vegetation by herbivorous fish (Ewbank, 1993). Aquatic vegetation is also being destroyed by siltation and cattle when pans and stock ponds dry up during the dry season (D.V. Rockingham-Gill, *in litt.*). In Madagascar, numbers have declined considerably through hunting and trapping (Langrand, 1990) and the destruction of aquatic plants by introduced exotic herbivorous fish has been a large problem (H.G. Young, *in litt.*).

Network of key sites:

The Lagoa de Cufada in Guinea Bissau had a maximum count 250 *N. auritus* in 1990, which is exactly 1% of the population. No other count is known to have equalled 1% of the population anywhere in Africa so a key sites network will probably never be possible for this species.

EURASIAN WIGEON

Anas penelope

Subspecies:

Monotypic.

Distribution:

Palaearctic, with a wide breeding distribution across northern Eurasia from Iceland eastwards. Western populations winter south to North Africa and the Gulf, with only small numbers continuing on south into West and East Africa and the Arabian Peninsula. In eastern Africa, *A. penelope* is common to abundant in Eritrea, Ethiopia and northern Sudan, less common in Kenya, scarce in Tanzania and only a vagrant in Uganda. It is generally scarce in West Africa, with only small numbers reaching northern Nigeria (maximum 30), Chad (maximum 300), Mali (maximum 295) and Senegal (maximum 70).

Movements:

Almost entirely migratory, although some populations (e.g. the British breeding population) are mainly sedentary. The species winters mainly at temperate latitudes, although small numbers penetrate much further south in West and East Africa. The relatively small Icelandic population (4,000–6,000 pairs) winters mainly in western Britain and Ireland, with some birds continuing on to adjacent parts of the continent. There have also been at least five recoveries of Icelandic birds in northeastern North America (Gardarsson, 1991a). Birds breeding in Fennoscandia and European Russia winter in northwest Europe, along with a large number of birds from further east in northern Siberia, where there have been recoveries from as far east as 80°E. Most of the *A. penelope* breeding in west and central Siberia, however, winter around the Caspian and Black Seas and in the Mediterranean Basin westwards to southern Spain. The main wintering areas for birds moulting in the Volga Delta are in countries around the Black Sea and Mediterranean Sea, but about 20% of the birds ringed in the Volga Delta have been recovered in northwest Europe (Shevareva, 1970). Most of the birds wintering in Southwest Asia probably originate from the west Siberian plain. The birds wintering in northeast Africa are also thought to originate from west-central Siberia (Brown *et al.*, 1982).

Anas penelope undertakes significant cold weather movements of varying magnitude depending on the absolute severity of the cold winter. Increases occur in east and west Britain and Ireland and north and west France in severe winters, and dramatic increases occur in Iberia in very severe winters (Ridgill & Fox, 1990). At such times, birds from northwest Europe presumably mix with birds wintering in the Mediterranean Basin (Ridgill & Fox, 1990).

Population limits:

No discrete populations are identifiable. On the basis of ringing recoveries, Shevareva (1970) and Atkinson-Willes (1976) divided the Western Palaearctic *A. penelope* into three different sub-populations: a small sub-population breeding in Iceland which winters mainly in Scotland and Ireland; a second sub-population breeding in Scandinavia and Russia between 30° and 70°E, which winters in northwest Europe; and a third sub-population breeding further east, between 60° and 105°E, which winters in the Black Sea-Mediterranean region. The wintering ranges of the two main sub-populations are almost completely separate, with few exchanges occurring between them except in southern Spain where *A. penelope* from both origins may mix, especially during hard winters. Monval & Pirot (1989) followed this division into two main wintering groups (incorporating the Icelandic birds within the northwest European group), but split the Black Sea/Mediterranean region into two sub-regions, the west Mediterranean and the east Mediterranean, for the purposes of trend analyses. Perennou *et al.* (1994) recognized a third large wintering group in Southwest Asia concentrated mainly in the south Caspian region, Iran and Iraq. To these should be added the relatively small number of birds wintering in northeast Africa south to Kenya. These three main wintering groups (northwest Europe, Black Sea/Mediterranean and Southwest Asia/northeast Africa) are retained here, although it is clear that there is a considerable amount of overlap between all three both on the breeding grounds in western and central Siberia and at the major moulting area in the Volga Delta.

EURASIAN WIGEON *Anas penelope*



Population size:

- **Northwest Europe: 1,250,000 (see Annex 1). 1% level 12,500.**

- **Black Sea/Mediterranean: 560,000 (see Annex 1). 1% level 5,600.**

A few hundred birds, presumably from this population, occasionally extend into West Africa, e.g. 300 at Lake Chad in 1969–70.

- **Southwest Asia/northeast Africa: 250,000. 1% level 2,500.**

Perennou *et al.* (1994) estimated the Southwest Asian wintering population at about 250,000 birds, but this estimate relied heavily on 1970s data, and there has apparently been some decline in numbers since then. The highest count during the International Waterfowl Census in recent years has been 100,000 in 1991 (when over 60,000 were reported at Kizil Agach in Azerbaijan), while in 1993 and 1994, the total counts were only 53,000 and 25,000 respectively, despite good coverage. It would seem unlikely, therefore, that the number of birds wintering in Southwest Asia exceeds 200,000. Urban (1993) estimated the total population wintering in northeast Africa (excluding Egypt) to be in the range 15,000–60,000, with most birds in Sudan (5,000–20,000) and Ethiopia (10,000–40,000), and probably less than 1,000 in the rest of eastern Africa. Adding these birds to an estimated 200,000 birds in Southwest Asia suggests a total Southwest Asian/northeast African wintering population of about 250,000.

Habitat/ecology:

Anas penelope breeds in shallow, freshwater marshes, lakes and lagoons surrounded by scattered trees or open forest; it winters in coastal marshes, freshwater and brackish lagoons, estuaries, bays and other sheltered marine habitats. The males moult their flight feathers between late May and July, females between late June and early September. Important moult gatherings have been recorded at many localities in Russia (e.g. Volga Delta, lakes in the Urals and upper Pechora), and in Estonia, southern Sweden, Denmark and Iceland. The main departure from the breeding grounds takes place in September, and the main arrival on the wintering grounds in October and November. Birds leave their winter quarters in northwest Europe and the Black Sea region in the second half of March and early April, but do not arrive on their breeding grounds in northern Russia before the second half of May.

Conservation status:

The population wintering in northwest Europe has shown a significant increase over the last 20 years, with an apparent rate of increase of 7.48% per annum (Rose, 1995). In contrast, the Black Sea/Mediterranean population appears to be decreasing rapidly. The number of birds wintering in the west Mediterranean has probably decreased by 45% in the last 20 years, while the number wintering in the Black Sea/east Mediterranean may now be less than half the number in 1982 (Rose, 1995). The population wintering in Southwest Asia is also decreasing. Krivenko (1993) reported a slight decline in numbers in the middle regions of the former USSR between 1972 and 1989, and the numbers wintering in Iran apparently decreased by 62% over almost the same period (Perennou *et al.*, 1994).

Network of key sites:

The autumn and spring passage sites in the Baltic, Belarus and Russia, suggest that many more important passage sites must exist in other areas. The Mouth of the Ob in the north and the Wadden Sea in the south are important terminal departure and arrival sites but there must be others for remaining populations and many more key passage sites must be used right across Europe *en route* between breeding and wintering sites. It is unlikely that such a dispersed and widespread breeding species will ever be appropriate for the development of a key breeding sites network and it is not known if key moulting or non-breeding concentrations exist in the north of the range. In contrast, Annex 2 lists over 40 key wintering sites for the northwest European wintering population, 52 for the Mediterranean wintering population and 40 for the Caspian/eastern Africa wintering population. All of these key wintering site networks are very extensive.

Protection status of key sites:

Most of the key passage sites known for *A. penelope* are protected and most of the key wintering sites in the Mediterranean region are protected, the Menderes Delta (Turkey) and Lac Fetzara (Algeria) being notable exceptions. The key wintering sites in northwest Europe are also mostly protected. In sharp contrast, the two most important wintering sites in the Caspian basin are protected (Bakhtegan and Tashk, Miankaleh and Gorgan Bay) but very few of the remaining 38 are fully protected.

GADWALL

Anas strepera

Subspecies:

Monotypic. A distinctive form, *A. s. couesi*, described from Teraina (Washington) Island in the Republic of Kiribati (Central Pacific) has not been seen since its discovery in 1874 and is presumed to be extinct.

Distribution:

Holarctic, with a wide breeding distribution at temperate latitudes across North America and Eurasia. Western Eurasian populations winter south to North Africa and the Gulf, with only small numbers continuing on south into sub-Saharan Africa and the Arabian Peninsula. *A. strepera* is an occasional breeding bird in North Africa (Morocco and Algeria). In eastern Africa, it winters in small numbers in the Nile Valley south to Sudan (10–100), and sporadically in the Ethiopian highlands (100–200); also rarely in Somalia, Kenya and Tanzania (Urban, 1993). In West Africa, it is an occasional winter visitor to the Senegal Delta, Mali (maximum 120), Nigeria and Chad, and a vagrant to Niger and Cameroon.

Movements:

Partially migratory; northern breeding birds descend to lower latitudes in winter, but breeding birds in more temperate regions tend to be rather sedentary. Most of the breeding birds from Scandinavia, the Baltic States and European Russia winter in western Europe, where they mix with the rather sedentary local breeding populations (especially in the Netherlands, France, Britain and Ireland). Of eight birds ringed in Russia and recovered wintering in Iran, seven had been ringed in the Volga Delta and the other in the southern Urals (62°E).

Population limits:

Monval & Pirot (1989) found it difficult to define precise biogeographical populations, and followed the traditional regional division between northwest Europe and the Black Sea/Mediterranean for convenience. For the purposes of trend analyses, these authors split the Black Sea/Mediterranean region into two sub-regions, the west Mediterranean and the east Mediterranean, but stressed that there was no evidence that different populations were involved. Perennou *et al.* (1994) defined a third wintering group in Southwest Asia. These three main wintering groups are adopted here, *viz.* northwest Europe, central Europe/Black Sea/Mediterranean and Southwest Asia. The very small Icelandic breeding population, estimated at 200–300 pairs (Koskimies, 1993), winters mainly in Britain and Ireland, and is included within the northwest European population.

Population size:

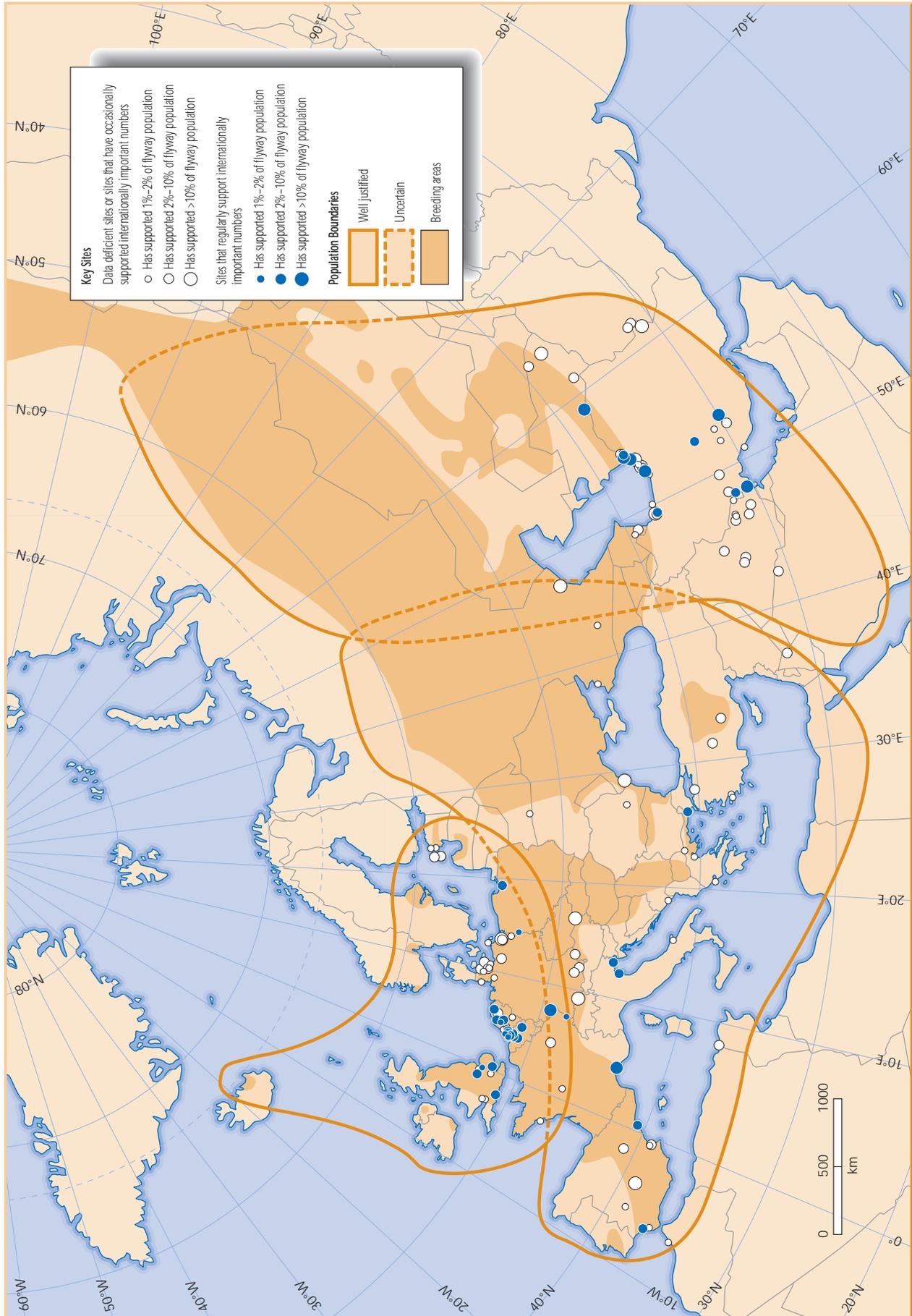
- **Northwest Europe: 30,000 (see Annex 1). 1% level 300.**
- **Central Europe/Black Sea/Mediterranean: 75,000–150,000 (see Annex 1). 1% level 1,000.**
- **Southwest Asia/northeast Africa: 130,000 (Perennou *et al.*, 1994). 1% level 1,300.**

Perennou *et al.* (1994) estimated the wintering population in Southwest Asia at 130,000, based on counts of up to 50,000 in the period 1987–91, and counts of over 90,000 in the 1970s. There is no evidence to suggest any recent change in numbers and, as very few birds reach northeast Africa, the estimate of 130,000 is retained for the entire Southwest Asian/northeast African population.

Habitat/ecology:

Anas strepera breeds on various types of freshwater or brackish wetlands, particularly shallow lakes with abundant emergent vegetation, mainly in open lowland terrain. In winter, it also occasionally occurs in estuaries and along sheltered coasts. *A. strepera* frequently occurs in close association with the coot *Fulica atra*, and has been recorded stealing food from coots which have brought macrophytes up to the surface from deep water (Tucker & Heath, 1994). The moult migration of the males occurs in early June; moulting concentrations have been recorded in Germany, the Netherlands, Belgium, the Bodensee and the Volga Delta. Peak numbers of moulting birds are found in early July. During the wing moult, birds are flightless for about four weeks. Females and young birds leave the breeding areas from early

GADWALL *Anas strepera*



August. The main autumn migration in western Europe takes place in October and November, and most birds are on their winter quarters by mid-December. The spring migration takes place in March and April.

Conservation status:

The number of *A. strepera* wintering in northwest Europe has been increasing at a rate of between 8% and 10% per annum since counts began in 1967, and this increase is continuing (Ruger *et al.*, 1986; Rose, 1995). At the same time, breeding populations have increased in most countries throughout much of northern, western and central Europe. This has been attributed primarily to an increase in suitable lowland eutrophic waters, such as reservoirs and flooded gravel pits (Tucker & Heath, 1994). The relatively small number of birds wintering in central Europe (currently 3,000–5,000) has increased significantly since the late 1960s, and there has also been an increase in the number wintering in the west Mediterranean, although here the trend is not statistically significant (Rose, 1995). However, the limited data available for the Black Sea/east Mediterranean suggest that the number of birds wintering in this area has been decreasing by at least 1.9% per annum since counts began in the late 1960s (Rose, 1995). A decrease has also been reported in the breeding population in European Russia, due largely to wetland loss and human disturbance, and numbers have also fallen in Ukraine, Moldova and probably Romania (Tucker & Heath, 1994).

Trends in the population wintering in Southwest Asia are unknown. However, Krivenko (1993) records a slight decline in numbers of *A. strepera* at the end of the breeding season in west and central Siberia between 1972 and 1989.

Network of key sites:

The Caspian wintering population of *A. strepera* is highly aggregated in winter when 47 key sites can be identified, 11 of which have been known to hold over 10% of the population. The remaining two populations are more widely dispersed in winter and although 28 and 32 key wintering sites are listed for the northwestern European and Mediterranean wintering populations respectively, these do not support the majority of the population which winters in small flocks. None of the key wintering sites outside of the Caspian Basin have ever supported over 10% of the population, with the exception of Putzarer See in Germany which has a maximum count of 2,000 individuals and perhaps some moulting sites in the Netherlands and Belgium. Very little is known about passage sites, moulting sites and breeding areas for any population. The Mediterranean population breeds in large numbers on the Trebon fishponds (Czech Republic) suggesting other fishpond complexes might be important for breeding *A. strepera* at more southerly latitudes. A nearby fishpond complex in Germany (Ismaninger Speichersee mit Fischteichen) is not important for breeding birds but is occupied by non-breeding birds from spring to autumn. Only 3 key spring and 4 key autumn passage sites are known for the Mediterranean wintering population. The Danube Delta is a major spring staging site and the Bodensee is very important in autumn, but more need to be identified. Obviously, many more key passage sites need to be discovered for all populations.

Protection status of key sites:

Most of the important sites in central Europe and the west Mediterranean are protected, although some important moulting areas in the Netherlands are unprotected. Further east, most important sites are unprotected and only 9 out of 47 key wintering sites in the Caspian region are fully protected.

COMMON TEAL

Anas crecca

Subspecies:

Polytypic. Three subspecies have been described: the nominate form in northern Eurasia; *A. c. carolinensis* in North America; and *A. c. nimia* in the Aleutian Islands. The latter is of somewhat questionable validity, the birds resembling the nominate form closely.

Distribution:

Holarctic, with a wide breeding distribution across North America and northern Eurasia. Western Eurasian populations winter south to North Africa and the Gulf, with only small numbers continuing on south into West and East Africa and the Arabian Peninsula. The North American subspecies *carolinensis* has occurred in Europe as a vagrant.

Movements:

Mainly migratory, moving to temperate and subtropical latitudes to winter, although southern breeding birds are sedentary or dispersive. Extensive ringing has shown that most *A. crecca* wintering in northwest Europe originate from Fennoscandia, the Baltic States, northwest Russia, northern Poland, Germany and Denmark. Icelandic breeding birds winter mostly in Britain and Ireland, although some also reach Denmark, the Netherlands and France (Gardarsson, 1991a). The breeding populations in Britain, Ireland, the Netherlands and France are largely resident in mild winters. Cold weather movements are clearly evident in northwest Europe, with movements of *A. crecca* to the Atlantic coast of France and the Iberian peninsula occurring during severe winters (Ridgill & Fox, 1990). *A. crecca* wintering in the west Mediterranean include birds breeding in western Siberia, west-central Russia and central Europe, while those wintering in the east Mediterranean originate mainly from central Russia and Ukraine east to the Volga-Kama river basins and the Trans-Ural region (Shevareva, 1970). Eight birds ringed in Egypt have been recovered in the Caucasus and east of the Urals, with five of these from the basins of the Ob and Irtysh rivers (to 80°E) (Goodman & Meininger, 1989). Most birds wintering in Southwest Asia are believed to originate from western Siberia, e.g. 20 *A. crecca* ringed in Iran in the 1960s and 1970s were recovered east of the Urals, mainly in the west Siberian plain.

Population limits:

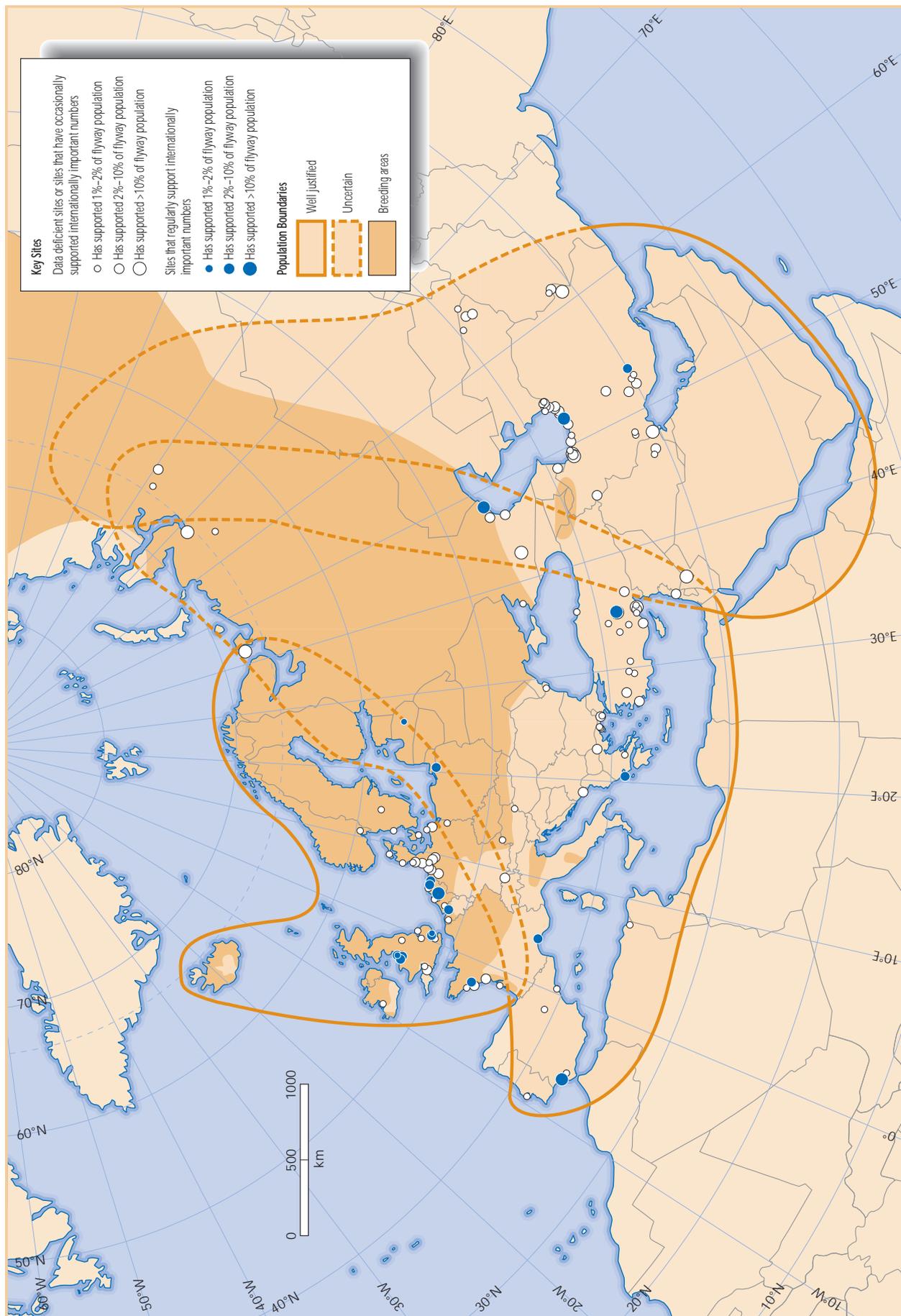
No discrete populations are identifiable in Western Eurasia, and it is doubtful if any such populations exist. Earlier authors have recognized three 'populations' based on the main wintering areas (northwest Europe, Black Sea/Mediterranean and Southwest Asia), and these are retained here. The relatively small number of birds wintering in central Europe (about 25,000) are probably best included with the Black Sea/Mediterranean wintering group, as are the small numbers of birds wintering in West Africa. Birds wintering in northeastern Africa are included within the Southwest Asian population. There is probably a considerable amount of mixing between the birds wintering in northwest Europe and those wintering in the Black Sea/Mediterranean region, with birds from both groups converging in southern Iberia, especially during cold winters. Although Monval & Pirot (1989) split the Black Sea/Mediterranean region into two sub-regions, the west Mediterranean and the east Mediterranean, for the purposes of trend analyses, they stressed that there was no evidence that different populations were involved. There is clearly considerable overlap between the Black Sea/Mediterranean and Southwest Asian wintering groups on the breeding grounds, with many birds in the east Mediterranean originating from the same breeding areas in western Siberia as those wintering in the south Caspian. There also appears to be some overlap between the Southwest Asian and south Asian wintering groups, as four *A. crecca* ringed in winter in Rajasthan, India, were recovered in subsequent winters in Iran (two in the Seistan Basin and two in the south Caspian lowlands).

Population size:

- **Northwest Europe: 400,000 (Monval & Pirot, 1989). 1% level 4,000.**

Monval & Pirot (1989) estimated the northwest European wintering population at 400,000 birds. Recent counts suggest that this figure remains valid (see Annex 1).

COMMON TEAL *Anas crecca*



- **Black Sea/Mediterranean: 750,000–1,375,000 (see Annex 1). 1% level 10,500.**

A few thousand birds, presumably from this population, extend into West Africa, e.g. up to 3,000 in Senegal, 1,600 in Chad and 500 in Nigeria.

- **Southwest Asia/northeast Africa: 1,500,000. 1% level 15,000.**

Perennou *et al.* (1994) estimated the Southwest Asian population at about 1,500,000 birds. Urban (1993) estimated the total population wintering in northeast Africa (excluding Egypt) to be 21,000–55,000 birds, mainly in Sudan (20,000–50,000) and Ethiopia (1,000–5,000), with less than 100 reaching East Africa. The estimate of Perennou *et al.* (1994) did not take into account the birds wintering in Africa, but as the number of these is relatively small and as the Southwest Asian wintering population appears to be declining, the estimate of 1,500,000 has been retained for the entire Southwest Asian/northeast African population.

Habitat/ecology:

Anas crecca breeds around small, freshwater lakes with abundant fringing vegetation and in shallow marshes; in winter, it also occurs on large shallow lakes, in brackish wetlands and along coasts. Males leave the breeding areas at the start of incubation. In many areas, males gather in small numbers to moult, but some large moulting concentrations occur in Russia, notably in the Volga Delta. The wing moult takes place between early June and late July, when birds are flightless for about four weeks. In northwest Europe, the autumn migration reaches a peak in October and November. The return migration begins in late February and peaks in March and April. Birds do not reach their breeding grounds in northern Russia until late May.

Conservation status:

In northwest Europe, the wintering population of *A. crecca* appears to be undergoing a slow long-term increase, with numbers increasing at a rate of 2.54% per annum over the period 1967–1993 (Rose, 1995). The data available for the Black Sea/Mediterranean region do not show any significant trend, although there is some indication of an increase in numbers wintering in the west Mediterranean (Rose, 1995). The population wintering in Southwest Asia, however, seems to be decreasing. Krivenko (1993) reported a noticeable decline in numbers in the middle regions of the former USSR between 1972 and 1989, and the numbers wintering in Iran apparently decreased by 78% over almost the same period (Perennou *et al.*, 1994).

Network of key sites:

A. crecca is a numerous and widespread species with no clear population boundaries, a great deal of overlap in populations, and a fairly dispersed distribution in all seasons. For these reasons the key sites network will never be as effective as for some other Anatidae. More information from spring and autumn could usefully lead to the listing of more passage, staging and moulting sites, especially for the Caspian wintering population. Key wintering site networks are all probably quite complete.

If maximum counts at key wintering sites are summed the maximum proportion of the population potentially able to winter on these wetlands can be estimated, but if averages at key sites are taken a more realistic estimation of the possible protection from the key sites network can be obtained. Nearly 40 key sites in northwest Europe usually support about 20% of the population at any one time. The 36 key Mediterranean wintering sites average 30% of the winter population and a quarter of these (7.5%) are usually at the Marismas del Guadalquivir in Spain. Similarly the 43 key Caspian wintering sites support about 25% of the population.

Very large autumn gathering locations exist at the Mouth of the Ob River and on the Kanin Peninsula. Birds must use numerous important localities, of which few are known, on their way to enormous autumn gathering points near the wintering grounds, such as the Wadden Sea and Sultansazligi (Turkey). The Volga Delta is the only key moulting site listed and very few spring passage sites can be identified. Kursiu Lagoon and the Nemunas Delta in Lithuania is the largest spring staging site with a maximum count of 10,300 individuals.

Protection status of key sites:

Most of the important wintering areas in northwest Europe and the west Mediterranean are protected, and about half of the important areas in the east Mediterranean, Black Sea and Caspian regions are protected. Little information is available on staging areas further to the north and east, but most of these are likely to be unprotected.

CAPE TEAL

Anas capensis

Subspecies:

Monotypic.

Distribution:

Confined to the Afrotropical Region. The species is patchily distributed in eastern and southern Africa from Sudan and Ethiopia south to Namibia and South Africa, and although it is locally common to abundant, it is scarce over much of its range. There are few records west of 5°E, except in the Chad Basin in Nigeria, where the species occurs regularly in flocks of up to 50. Small flocks have been recorded as far north as Ounianga Kebir in Chad (200 km from Libyan border), and the species has been recorded as a vagrant in southern Libya and in Ghana, where there are records of singles in December 1975 and March 1976 (Grimes, 1987). There is no proof of nesting west of Darfur in western Sudan, and all occurrences in West Africa may relate to seasonal movements in response to arid conditions.

Movements:

The species is known to undertake considerable movements, presumably in response to changing water levels as many of its favoured sites are ephemeral, but no regular migratory pattern is apparent over most of its range. The populations in eastern Africa are to some extent migratory, undertaking lengthy dry season movements north and northwest as far as Sudan, Chad and Nigeria. The bird is apparently a scarce migrant breeding bird to western Sudan. It has been recorded irregularly in December–April in northeastern Nigeria, southeastern Niger and Chad, perhaps as a non-breeding visitor, although there may be a small resident population in this area (Elgood *et al.*, 1994; Cramp & Simmons, 1977).

Population limits:

Although widely distributed in southern Africa north to Angola and Zimbabwe, the species is very patchily distributed further north, occurring mainly on the Rift Valley soda lakes of East Africa and on the Rift Valley lakes in Ethiopia. There appears to be a wide gap between the birds in southern Africa and those in eastern Africa. There are no records from Uganda (Britton, 1980) or Malawi (Benson & Benson, 1977), and few records from Zaire, southern Tanzania and Mozambique. The species is scarce in Zambia, occurring irregularly in small numbers, although it has bred (Benson *et al.*, 1971). It was recorded in only one of six counts undertaken in Zambia as part of the African Waterfowl Census between January 1991 and January 1994 (i.e. 84 in January 1993). It is also scarce in northern Botswana (Newman, 1989). This suggests that there is little if any mixing between birds in southern Africa and birds in eastern Africa. Two populations are therefore recognized: one in eastern Africa, extending west (perhaps mainly as a migrant) to Nigeria; and one in southern Africa.

Population size:

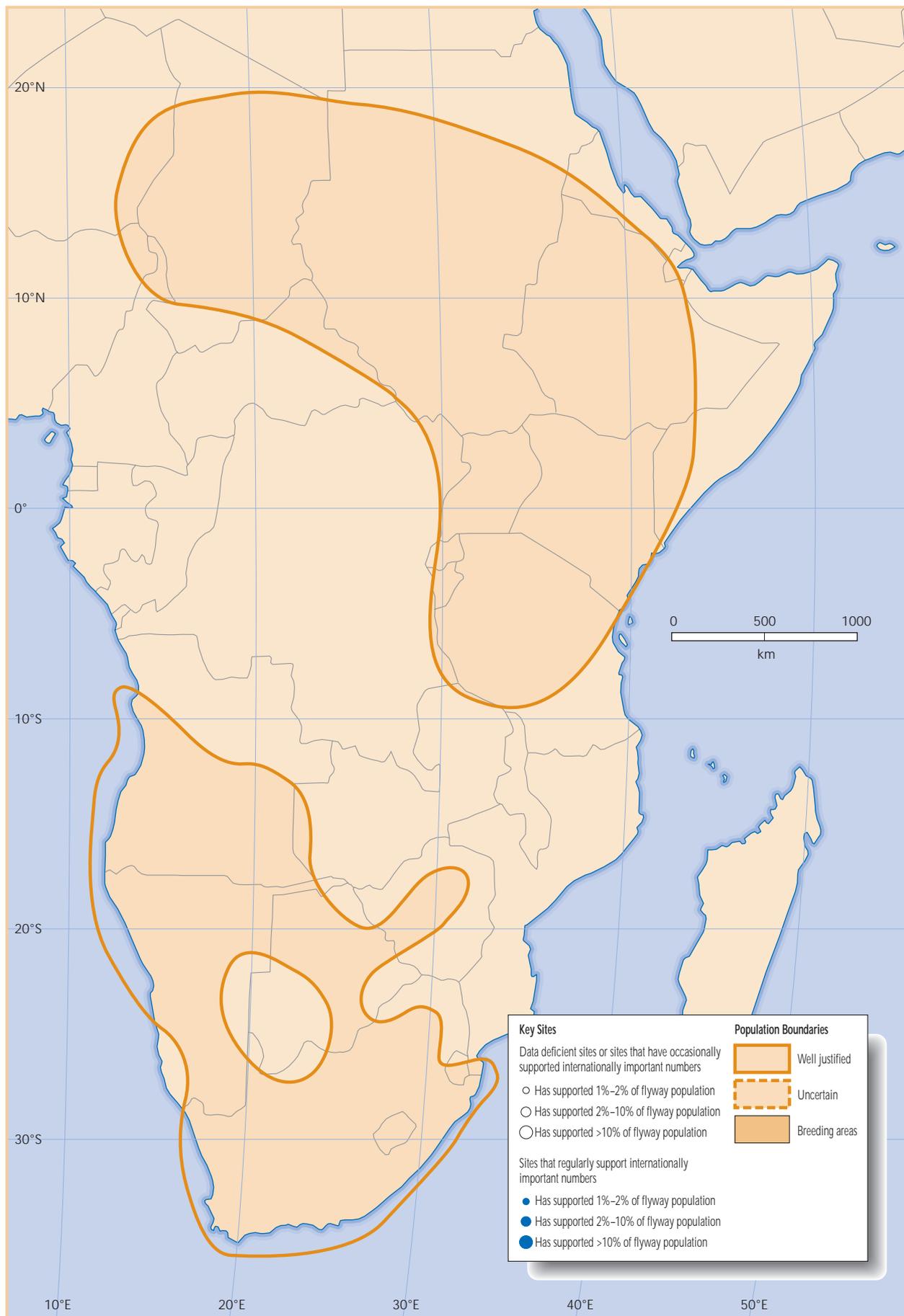
- **Eastern and north-central Africa: 100,000–250,000. Provisional numerical criterion 1,750.**

Locally common to abundant throughout its range; described as common to abundant in Ethiopia (Urban & Brown, 1971), common on alkaline lakes in Kenya (Britton, 1980), and common in northern Tanzania, especially at Lake Rukwa (Britton, 1980). It was the commonest duck in Kenya in January 1993. A total of 1,165 was recorded in Tanzania during very extensive waterfowl counts in January 1995. The highest count during the African Waterfowl Census (1991–94) in eastern Africa was 2,184 in 1993. In West Africa, there has been one count of 300 at Lake Chad, but otherwise no records of over 80 birds. Between 50 and 60 were present at Ounianga Kebir, Chad, in December 1963.

- **Southern Africa (to Angola and Zambia): 100,000–250,000. Provisional numerical criterion 1,750.**

Fairly common to very common almost throughout southern Africa except Botswana, and most common in the west (Sinclair *et al.*, 1993). In Botswana, a fairly common resident in the southeast, but much less common in the north (Newman, 1989). The population in Zimbabwe, confined largely to brackish pans in arid western Matebeleland, is estimated to number in the hundreds of birds (Ewbank,

CAPE TEAL *Anas capensis*



1993). The highest count during the African Waterfowl Census (1991–94) in southern Africa was 2,213 in 1992.

Habitat/ecology:

Anas capensis shows a preference for shallow, brackish to saline waters, especially those with muddy shores, including vleis, lagoons, salt lakes, salt pans and sewage settlement ponds, and also occurs on tidal mudflats. It occurs from the lowlands up to 1,700 m in the East African Rift Valley. It is normally seen in pairs or small groups, but flocks of several hundreds occur when moulting. During the post-nuptial moult, when the birds are flightless, they usually retire to deep waters and sometimes *Typha* beds.

Conservation status:

The species has been increasing in parts of southern Africa in recent years, and apparently benefits from the proliferation of artificial water bodies (del Hoyo *et al.*, 1992), but no increase has been apparent in Zimbabwe (D.V. Rockingham-Gill, *in litt.*).

Network of key sites:

No sites have ever been known to contain more than 1% of either population.

MADAGASCAR TEAL

Anas bernieri

Subspecies:

Monotypic.

Distribution:

Endemic to Madagascar, and known with certainty only from localities close to the west coast, from the far north as far south as Lake Ihotry. There are records from Montagne d'Ambre in the far north (in 1934), Ambilobe in the northwest (in 1969), Lake Kinkony (1983), the western savannas near Maintirano (1930), Bekopaka (about 1930) and possibly also at Ankavandra (1929). The Antsalova region (especially Lake Bemamba) was shown to be the major area for the species in the 1970s. It has also been recorded in the last century from around Morondava, and in 1957 from Lake Ihotry (southeast of Morombe). Sub-fossil evidence indicates that the species had a much wider distribution in Madagascar before the arrival of humans two thousand years ago (O. Langrand, *in litt.*).

Movements:

Mainly sedentary, probably undertaking regular annual movements from breeding areas in forest to coastal lakes estuaries and mangroves (H.G. Young, *in litt.*). Lake Bemamba (a major dry season locality for the species) dries out in September and October, and the teal are then thought to disperse to the coast.

Population limits:

Only one population is recognized, *viz.* the entire population of the species.

Population size:

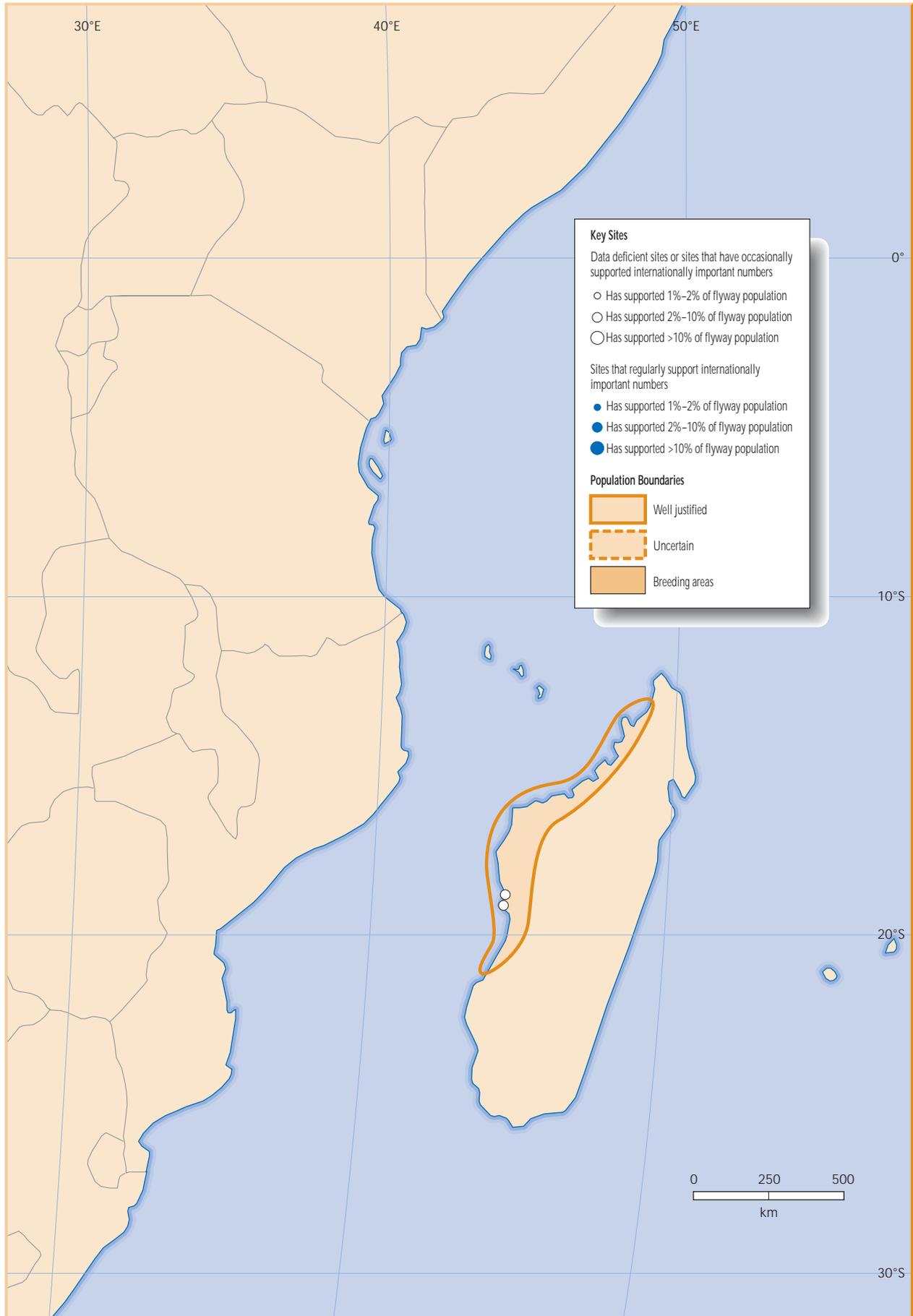
- **Entire population: 500–1,000. 1% level 8.**

Although not considered rare on the west coast in the last century, it was described as very rare and localized by around 1930. Langrand (1990) gives the main range as being the sector of the west coast containing Bemamba Lake and the mouth of the Tsiribihina River. The Lake Bemamba region was discovered to be an important area for the species in the 1970s. At Lake Bemamba itself, 81 birds were seen (10 pairs on the eastern shore, 61 individuals on the western shore) in August 1973, and no more than 120 estimated for the whole lake (Scott & Lubbock, 1974). Some 60 birds (of which 13 were shot by hunters) were recorded at nearby Lake Masama in 1970, but none was present at this lake in 1973. In July–August 1992, there were at least eight pairs of *A. bernieri* at Lake Bemamba, but none were at Lake Masama or the Soahina Estuary (Young *et al.*, 1993a). In July–August 1993, 75–95 birds were seen and 100–500 were estimated to be present in the area between Antsalova and Morondava; the birds seen included a minimum of 35 at Lake Bemamba, 35 (29–47) at Lake Antsamaka, a pair in the Tsiribihina Delta, and nine at Beroboka (Young *et al.*, 1993b). A previously known site (Lake Kinkony) held no birds in July–August 1993, but a flock of 11 was seen on mudflats in the Betsiboka Estuary in October 1993 (in Safford 1993) and 81 here in July 1995 (R. Rabarisoa, *in litt.*). A total of 50 was recorded during the African Waterfowl Census in Madagascar in July 1993. Very small numbers of birds have been reported in recent years at Lac Amboromalandy (a reservoir) near Mahajanga in the northwest (Young, 1995). A. Green (*in litt.*) has given the population as 100–1,000, but 500–1,000 would seem more appropriate.

Habitat/ecology:

A species of shallow, open waters (fresh or saline, perhaps most often brackish) in the lowlands, occurring in marshes, around shallow alluvium-rich lakes, on exposed sand-bars in large rivers, at river mouths and in mangroves. Rather gregarious, occurring in groups of up to 40, but during July and August, found only in pairs (Green *et al.*, 1994). No information is available on nesting, although this is believed to begin during the west coast wet season in November to February (Young, 1995). Local people report breeding at Lake Bemamba in November and April (Collar & Stuart, 1985). The species usually feeds by sifting mud in a shelduck-like way (Green *et al.*, 1994; Young, 1995), and open, nutrient-rich mud with shallow water appears to be a requirement for foraging (Green *et al.*, 1994; Young *et al.*, 1993b).

MADAGASCAR TEAL *Anas bernieri*



Conservation status:

A declining and threatened species, listed as 'endangered' by Collar *et al.* (1994) and Green (1996). Transformation of wetlands into rice-fields has become a very serious threat within the last two decades. Rice-growing was already affecting Lake Bemamba in the early 1980s, and by July 1992, all suitable habitat at Lake Masama had been converted to rice-fields (Young *et al.*, 1993a; Young, 1995).

Network of key sites:

As for all globally threatened species, all sites regularly used by an appreciable number of individuals are of international importance. Lake Bemamba may actually only be of importance during the dry season until it dries out completely. Lake Antsamaka might be equally important (A.J. Green, *in litt.*).

Protection status of key sites:

Only one of the two known sites (Analabe) is protected, but this is a private reserve and is thought to contain little suitable habitat (Collar *et al.*, 1994). Hunting is officially banned at Lake Bemamba and Lake Masama in the Antsalova regions, and also on parts of Lake Kinkony and Lake Ihotry (Collar & Stuart, 1985) but there is no infrastructure available to enforce this ban or even to inform inhabitants of its existence (Young, *in litt.*).