

MALLARD

Anas platyrhynchos

Subspecies:

Polytypic. As many as eight subspecies are recognized by some authors, but up to six of these (*wyvilliana*, *laysanensis*, *fulvigula*, *maculosa*, *diazi* and *oustaleti*) are sometimes considered as separate species. Four subspecies are listed by Rose & Scott (1994): the widespread nominate form, *A. p. conboschas* from Greenland, *A. p. oustaleti* from the Mariana Islands, and *A. p. diazi* from Mexico. (*A. p. oustaleti* may be an unstable hybrid between *platyrhynchos* and *A. superciliosa*).

Distribution:

Holarctic, with a wide breeding distribution across North America and northern Eurasia. *A. p. conboschas* is confined to Greenland. *A. platyrhynchos* is the most abundant and widespread of all Anatidae species in Western Eurasia, breeding from the Arctic at 70°N to 35°N in North Africa and 20°N in the Middle East, and wintering in all habitats except offshore from 20°N to 60°N. Small numbers breed in North Africa (Morocco, Algeria and Tunisia), but the species occurs in tropical East and West Africa only as a vagrant (Senegal, Sudan, Eritrea and Ethiopia). Small feral populations have been established in Witwatersrand and southwestern Cape Province, South Africa.

Movements:

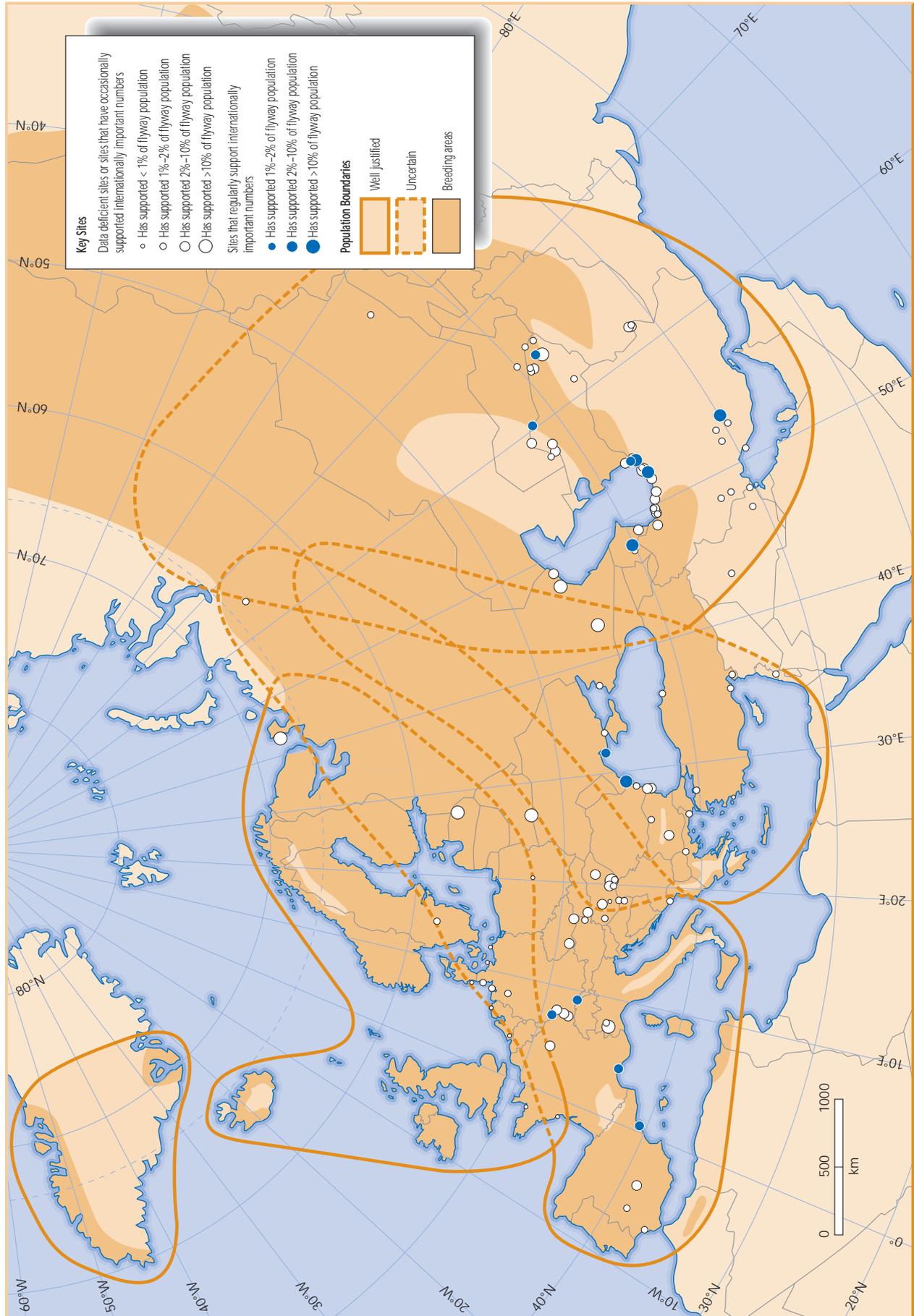
Partially migratory; northern breeding birds are generally migratory, wintering much further south, while birds breeding in temperate regions are sedentary or dispersive (e.g. in most of western Europe). *A. p. conboschas* is said to be resident in coastal Greenland. The Icelandic breeding population, estimated at 10,000–15,000 pairs (Koskimies, 1993) winters mainly in Iceland, with the remainder wintering mainly in Britain and Ireland. Most of the birds breeding in northwest Russia, Finland, Sweden and the Baltic countries winter from Denmark to northern France and Britain, although up to 250,000 birds may remain in the west Baltic except in years with extreme ice-cover (Durinck *et al.*, 1994). Some 30,000–40,000 have over-wintered in Lithuania in recent mild winters (S. Svazas *et al.*, 1995). Birds breeding further southwest in Europe are mainly sedentary. Thus, *A. platyrhynchos* wintering around the North Sea coasts comprise a mixture of local breeding birds and immigrants from Scandinavia, the Baltic and northwest Russia. Some of the birds breeding in central Europe remain throughout the winter wherever suitable conditions prevail, but the majority are migratory, wintering mainly along the northern Mediterranean coast. Some *A. platyrhynchos* from central Europe may also perform a southeastwards migration along the Danube, and may therefore intermix in the Black Sea with breeding birds from further east (Monval & Pirot, 1989).

Shevareva (1970) has summarized the migrations of *A. platyrhynchos* breeding in the former USSR. Birds breeding in the Oka Basin and upper reaches of the Don winter mainly around the Black Sea and east Mediterranean, while birds breeding in northeast European Russia winter mainly between the Black Sea and the Caspian Sea, with some continuing on to Turkey and the east Mediterranean. Birds breeding in western Siberia between the Urals and the Ob River winter over a wide area from the Balkans and Black Sea to the Caspian Sea, with some reaching the Nile Delta. Birds breeding further east, in the basins of the Ob and Irtysh, winter mainly in the Caspian region and central Asian republics, although some of these birds also reach Turkey in the west, Pakistan in the east and UAE/Saudi Arabia in the south.

In northwest Europe, *A. platyrhynchos* is not a species highly disposed to move long distances during cold weather, although some local movements may be made in very severe winters (Ridgill & Fox, 1990). However, massive hard weather movements have been recorded in the Caspian region, with large influxes occurring in Iran during periods of severe weather further north (Perennou *et al.*, 1994).

Population limits:

Five populations are recognized in Western Eurasia, the discrete population of *A. p. conboschas* in Greenland and four populations of the nominate form based on the main wintering regions: (1) a northwest European group; (2) a west Mediterranean group; (3) a Black Sea/east Mediterranean group; and (4) a Southwest Asian group. Monval & Pirot (1989) concluded that while the existence of a discrete northwest European population of *A. platyrhynchos* seemed plausible, it was difficult to assess



the extent of isolation between all migratory and resident populations or groups, especially in central and eastern Europe. These authors therefore followed the traditional split into northwest European and Black Sea-Mediterranean populations purely for convenience, and not because they felt that such a split was justified on biological grounds. Both Ruger *et al.* (1986) and Monval & Pirot (1989) recognized only a single wintering group in the Black Sea/Mediterranean region. However, because of discrepancies in the quality of the data, 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.

As the nominate populations of *A. platyrhynchos* are not discrete, but defined on the basis of their main wintering regions, the significantly declining trend for birds wintering in east-central Europe and the Black Sea/east Mediterranean as opposed to the non-significantly increasing trend for the wintering population in west-central Europe and the west Mediterranean, are thought to contrast highly enough to warrant treatment as two populations. In accordance with this hypothesis, the single largest winter concentration of the species in the Western Palearctic can be found in the Danube Delta and eastern Danube catchments. Although distribution is continuous, there is certainly a decrease in the density of wintering birds caused by the unsuitable terrain of the Alps, Italy and most of the Balkans before densities rise again in the Rhine Valley on the French/German border and in the Mediterranean region of France and Spain. This can be seen from the distribution of key sites on the accompanying map.

Monval & Pirot (1989) also suggested a movement of *A. platyrhynchos* along the Danube corridor from east-central Europe southeast into the Black Sea region, while the birds from further west in central Europe appeared to move southwest into the west Mediterranean.

Perennou *et al.* (1994) recognized a Southwest Asian wintering group of *A. platyrhynchos* extending east from the Caspian region, Iran and Iraq to Afghanistan and the central Asian republics. Ringing recoveries have shown that birds wintering in the Black Sea/east Mediterranean region and birds wintering in Southwest Asia overlap extensively on their breeding grounds in western Siberia and also at important moulting areas in the Volga Delta (Shevareva, 1970). Similarly, there is considerable overlap in the breeding areas of birds wintering in Southwest Asia and those wintering further east in central Asia and Pakistan. Thus, there is little biological justification for the existence of any separate populations of *A. platyrhynchos*, and they are therefore retained here purely for practical reasons.

Population size:

- **Greenland (*conboschas*): 15,000–30,000. Provisional numerical criterion 225.**

The breeding population has been estimated at 5,000–10,000 pairs (European Bird Database, 1994), suggesting a total population of about 15,000–30,000 individuals.

- **Northwest Europe: 5,000,000 (Monval & Pirot, 1989). 1% level 20,000.**

The estimate of Monval & Pirot (1989), repeated by Rose & Scott (1994), is retained, although it has been suggested that because the species is generally very widely dispersed, the actual population may be as much as double this (Ridgill & Fox, 1990).

- **Northern Europe/west Mediterranean: 1,000,000 (see Annex 1). 1% level 10,000.**

- **Northeast and central Europe/Black Sea/east Mediterranean: 2,250,000 (see Annex 1). 1% level 20,000.**

- **Western Siberia/Southwest Asia: 800,000 (Perennou *et al.*, 1994). 1% level 8,000.**

Habitat/ecology:

A. platyrhynchos occurs on almost every type of wetland within its range, including fresh, brackish or saline waters, as long as they are relatively shallow and provide some cover; however, it generally avoids fast-flowing and oligotrophic waters. It is very tolerant of human presence, often frequenting ornamental waters, irrigation networks, reservoirs, *etc.* Outside the breeding season, it commonly occurs in estuaries and along sheltered coasts. Moulting migrations occur from mid-May. During the wing moult, birds are flightless for about four weeks. Small gatherings of moulting birds are common, and large concentrations occur in some areas (e.g. Matsalu Bay, at sites in the Netherlands, at the Bodensee and in the Volga Delta). Females and juveniles leave the breeding grounds in September. The autumn

migration of northern and eastern populations reaches a peak in October and November; the return passage begins as early as February.

Conservation status:

The sedentary breeding population of *conboschas* in Greenland is thought to be relatively stable (European Bird Database, 1994). The northwest European population has shown great stability over the past 20 years (Rose, 1995). In the west Mediterranean, there has been a significant increase in the numbers counted during the International Waterfowl Census, suggesting that the wintering population has doubled in size over the last 20 years (Rose, 1995). However, in eastern central Europe, the Black Sea and east Mediterranean, there has been a significant decline in numbers over the last 20 years, with numbers in east-central Europe falling by 60% since the mid-1970s, and numbers in the Black Sea/east Mediterranean falling by 75% since 1986 (Rose, 1995). Trends in the population wintering in Southwest Asia are unknown.

Network of key sites:

Although at times highly gregarious, *A. platyrhynchos* seldom occurs in concentrations which exceed the high 1% thresholds for this abundant species. Thus few key sites are identified for the large populations of this species. The much more extensive network of 51 key sites for the smaller Caspian wintering population shows that a more effective network could probably be obtained through lowering the selection threshold. In the Caspian over 50% of the population winters on key sites which is more than for *A. crecca* in the same region. It follows that for all four migratory populations of *A. platyrhynchos* there is a negative correlation between the size of the population and the proportion supported by the key wintering sites network. The least effective network is consequently in northwest Europe where approximately 5% of the population winters on about 16 key sites of which only three have maximum counts exceeding 1% (50,000). No key sites have been identified for *A. p. conboschas*. Only 8 key sites have been identified during seasons other than winter, and some of these sites (Kanin Peninsula, Pskovsko-Chudskoye lakes, Danube Delta, Manych-Godilo Lakes and the Volga Delta) can be extremely important.

Protection status of key sites:

Most of the important sites are protected.

YELLOW-BILLED DUCK

Anas undulata

Subspecies:

Polytypic. Two subspecies have been described: *A. u. undulata* from Angola and central Uganda south to South Africa, and *A. u. rueppelli* in Ethiopia, Sudan, northern Uganda and northern Kenya.

Distribution:

Confined to the Afrotropical Region. *A. u. undulata* occurs from Angola, southern Uganda and Kenya south to South Africa; *A. u. rueppelli* occurs in the Upper Blue Nile region of Sudan, in Ethiopia and in northern Uganda and northern Kenya. There is a single old specimen record of a bird from Cameroon (Louette, 1981), and the species has also occurred as a vagrant on the Mambilla Plateau in Nigeria (Elgood *et al.*, 1994) and in Eritrea (Smith, 1957). *A. undulata* is the most abundant duck in many parts of its range, especially in temperate regions.

Movements:

A. u. rueppelli appears to be mainly sedentary. Thus, while it is common to abundant in Ethiopia, there is only one old record of a bird from neighbouring Somalia (Ash & Miskell, 1983). In eastern Africa, the nominate race seems to be subject to only limited local movements, and is generally described as resident. However, birds in southern Africa are more migratory, undertaking considerable local movements to alternative waters within the same region during rains. Large numbers of birds congregate towards the middle and end of the dry season, and then disperse to breed at the onset of the first major rains. Most of these movements appear to be random and to about 50 km or less, but movements over much greater distances have been recorded from Barberspan, western Transvaal, with birds travelling up to 1,100 km.

Population limits:

Three populations are recognized: the population of *rueppelli* in northeastern Africa (Sudan, Ethiopia, northern Uganda and northern Kenya); the mainly sedentary population of *undulata* in eastern and south-central Africa (south to the Zambezi); and a partially migratory population in southern Africa (south of the Zambezi). It is not known to what extent, if any, migratory birds from the southern African population extend north of the Zambezi River outside the breeding season, and then come into contact with the mainly sedentary population further to the north.

Population size:

- **Ethiopia, Sudan, northern Uganda and northern Kenya (*rueppelli*): 20,000–50,000. Provisional numerical criterion 350.**

Described as common to abundant in Ethiopia (Urban & Brown, 1971); over 300 birds were present at Lake Bilate in November 1994, and over 380 were counted in the Akaki area in January 1995 (P.O. Syvertsen, *in litt.*). Ellis-Joseph *et al.* (1992) give the total population of *rueppelli* as over 20,000.

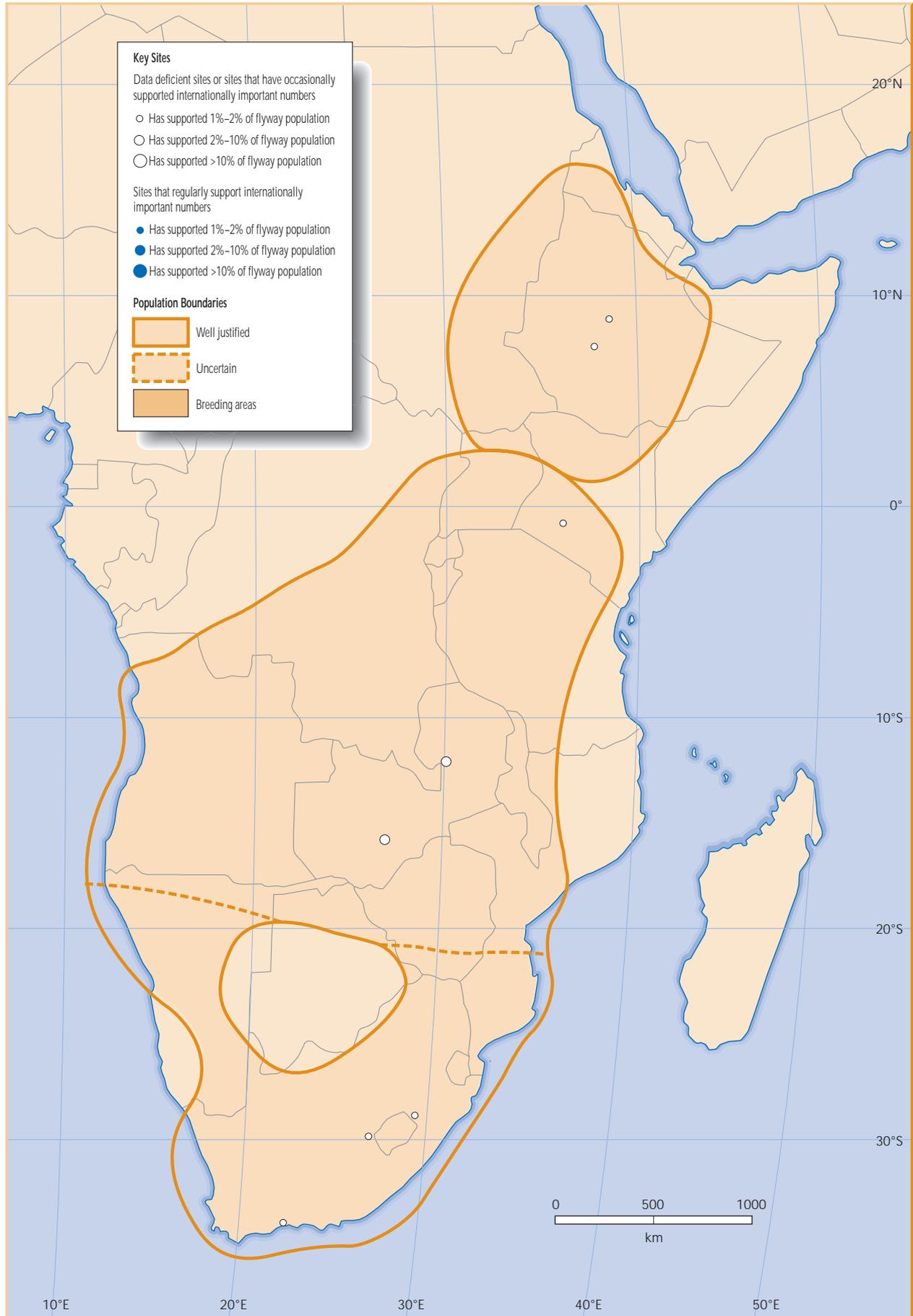
- **Eastern Africa (*undulata*): 50,000–100,000. Provisional numerical criterion 750.**

Widespread and common in Kenya, Tanzania and Uganda (Britton, 1980), and the commonest duck west of the Rift Valley in Malawi (Benson & Benson, 1977). Locally numerous in northern and western Zambia, but probably absent from Luangwa and the Middle Zambezi (Benson *et al.*, 1971); fairly common and widespread in Bangweulu Swamps and seasonally common at Kafue Flats (e.g. 2,710 in January 1994). A total of 380 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 3,724 in 1994.

- **Southern Africa (*undulata*): 60,000 (Rose & Scott, 1994). 1% level 600.**

A common resident throughout much of Botswana (including the Okavango Delta), Lesotho, South Africa and Swaziland, but confined to the extreme southeast of Namibia, very scarce in Zimbabwe, where there are only a few pairs in Matabeleland and the eastern highlands, with several vagrants reported recently (1996) from Mana Pools National Park, Zambezi River (D.V. Rockingham-Gill,

YELLOW-BILLED DUCK *Anas undulata*



in litt.). *A. undulata* is apparently absent from Mozambique (Newman, 1989; Sinclair *et al.*, 1993; Penry, 1994; D.V. Rockingham-Gill, *in litt.*). The population in southern Africa has been estimated at 52,000–65,000 birds (Brown *et al.*, 1982). The highest count during the African Waterfowl Census (1991–94) in southern Africa has been 6,486 in 1993.

Habitat/ecology:

Anas undulata frequents open waters of estuaries, slow-running rivers with pools, lakes, flooded lands, coastal lagoons, artificial reservoirs and dams, pans and sewage disposal impoundments. It occurs from the lowlands to high in the mountains (up to 3,890 m in Ethiopia). In East Africa, it is typically a bird of the highlands above 1,600 m, but it also occurs commonly in the marshes around the edge of Lake Victoria. Flock sizes are highly variable, from a few birds to many hundreds. In South Africa, the peak of the post-nuptial wing moult occurs in November–February (southwest Cape Province) or April–July (Transvaal), about three or four months after the peak of breeding.

Conservation status:

According to Ewbank (1993), this is the only species of Anatidae whose numbers have declined in Zimbabwe in recent years.

Network of key sites:

Very few key sites have been identified for any Anatidae populations in southern and eastern Africa so eight sites for *A. undulata* is a relatively good basis for a key sites network. All eight key sites were selected from December–February census data.

Protection status of key sites:

The two most important sites in Zambia are protected but the protected status of other key sites was not supplied.

MELLER'S DUCK

Anas melleri

Subspecies:

Monotypic.

Distribution:

Endemic to Madagascar, occurring mainly in the east and on the central high plateau, but also at some of the major western lakes (Kinkony and Bemamba). The species also occurs on Mauritius where it was introduced in the mid-19th century (Diamond, 1987). It never spread widely, and appears to have always been confined to the remoter parts of the central plateau.

Movements:

Apparently sedentary. There have been some records on the west coast of Madagascar where the species does not normally occur, but it is not known to wander naturally outside the country.

Population limits:

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

Population size:

- **Entire population: 2,000–5,000. Provisional numerical criterion 35.**

Described as uncommon in the east and on the high plateau (Andasibe, Ranomafana, Alaotra Lake, Andringitra, Antananarivo); also recorded at Port Berge, Lake Bemamba and Lake Kinkony in the west (Langrand, 1990). 1,480 were seen at Lake Alaotra in 1989, including flocks of 260 and 160 (Young & Smith 1989). The highest count during the African Waterfowl Census in Madagascar in recent years was only 83 birds in July 1993. The species is very rare on Mauritius; the population was thought to be only about 20 pairs in the late 1970s, and has recently been estimated at no more than 30 pairs (Safford, 1995), possibly maintained by captive releases.

Habitat/ecology:

Anas melleri frequents a variety of wetland habitats, including freshwater lakes, rivers (slow- and fast-flowing), streams and woodland ponds, especially in humid forested areas, from sea level to 2,000 m. It also often occurs in rice fields. It is usually found in pairs or small parties (4–12 birds), although much larger gatherings have been observed at Lake Alaotra. Nesting has been observed between July and April. The species might also breed in rivers and is highly territorial.

Conservation status:

A declining and threatened species, listed as 'vulnerable' by Green (1996), and as 'near-threatened' by Collar *et al.* (1994). Recent information suggests that there has been a considerable decline in numbers over the past twenty years, with the species disappearing from a number of sites (Langrand, 1990 and *in litt.*). Young (1991) states that the species has declined throughout its range in eastern Madagascar, and notes that it is not found in any protected areas. The decline has been attributed to the transformation of natural habitat and heavy hunting pressure (traditional hunting, trapping and sport hunting). At Lake Alaotra, a stronghold of the species, it is heavily hunted throughout the year. Degradation of water quality in rivers and streams as a result of deforestation and soil erosion has probably also contributed to the decline (O. Langrand, *in litt.*). A decline in the population on Mauritius has been attributed to hunting and introduced rats and mongooses (Ellis-Joseph *et al.*, 1992). The introduction of *A. platyrhynchos* to Mauritius in 1980 is also a problem.

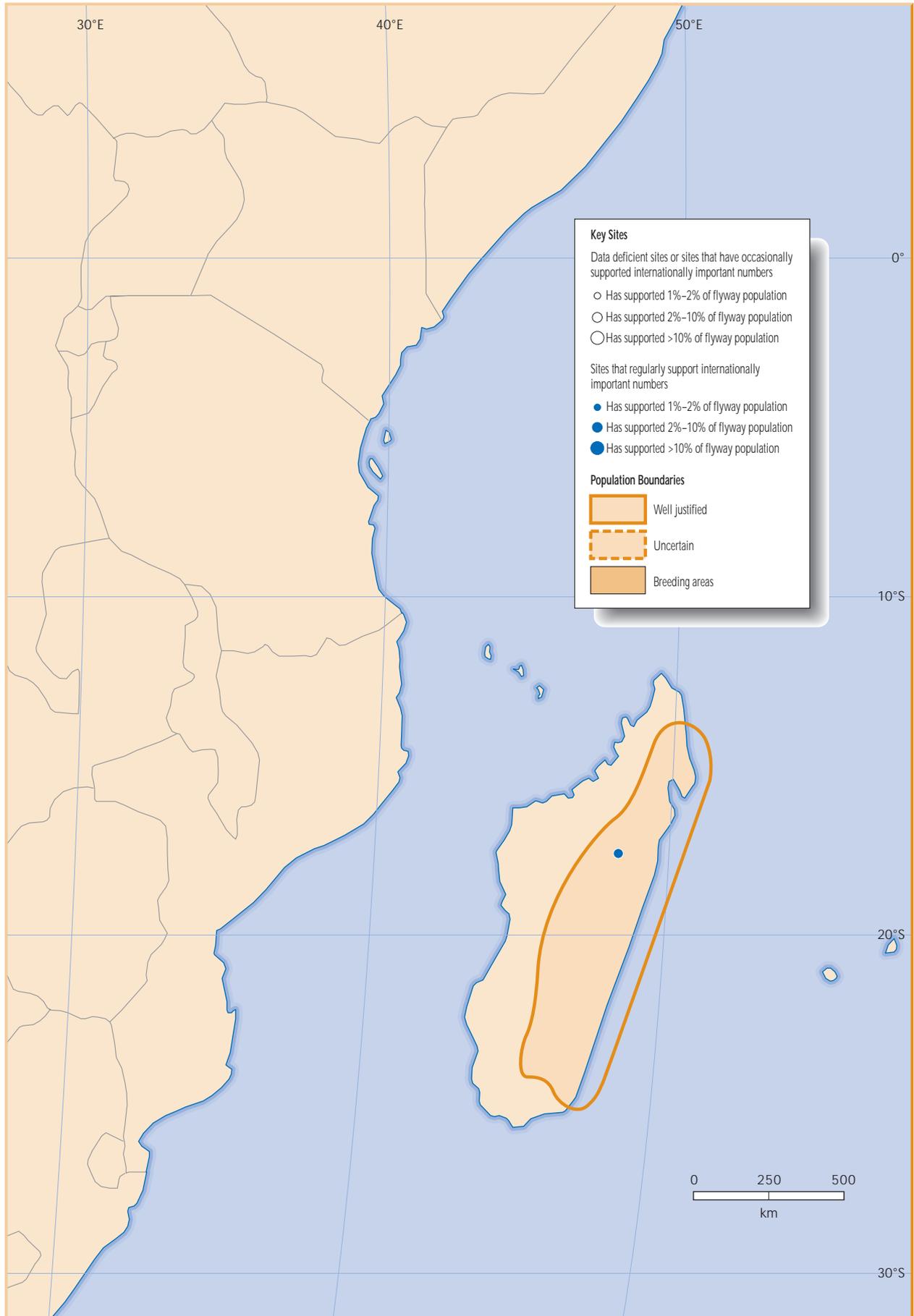
Network of key sites:

Many more key sites than Lac Alaotra must exist in Madagascar.

Protection status of key sites:

A. melleri is not known to occur in any protected areas (del Hoyo *et al.*, 1992).

MELLER'S DUCK *Anas melleri*



AFRICAN BLACK DUCK

Anas sparsa

Subspecies:

Polytypic. Three subspecies have been described: the nominate form in southern Africa; *A. s. leucostigma* in eastern Africa and Cameroon; and *A. s. maclatchyi* in west equatorial Africa (Gabon). The validity of *maclatchyi* has been questioned, and this form is not now generally recognized. Birds of the isolated population in the Cameroon highlands appear identical to those of Sudan and Ethiopia (to judge from the few specimens available) and are therefore placed in *leucostigma* (Snow, 1978). The subspecific status of the recently discovered population in southeastern Guinea is unknown. The geographical isolation of nominate *sparsa* and *leucostigma* is unsure, and there is probably a zone of intergradation where their ranges meet (Callaghan & Green, 1993).

Distribution:

Confined to the Afrotropical Region. The nominate form is widespread in southern Africa from Zambia, Zimbabwe and Mozambique south to Cape Province, South Africa. *A. s. leucostigma* occurs from Sudan and Ethiopia south to Angola, Zaire and Tanzania, and also in Cameroon (Cameroon Highlands and Adamawa Plateau) and Nigeria (Mambilla Plateau). There is also a very isolated population of *A. sparsa* in a mountainous region of southeastern Guinea around 8°40'N, 8°15'W (Walsh, 1985). *A. s. maclatchyi* is confined to the lowland forests of Gabon.

Movements:

Sedentary and territorial with a permanent home range; only very local movements have been recorded.

Population limits:

The nominate form in southern Africa and the poorly known population of *maclatchyi* in the lowland forests of Gabon should clearly be treated as discrete populations, as also should the two very isolated populations of *A. sparsa* in the highlands of Cameroon and Nigeria (*leucostigma*) and southeastern Guinea (subspecies unknown). The form *leucostigma* has a wide distribution in eastern Africa from Ethiopia south to Zimbabwe, but is confined to highland areas and is almost entirely sedentary. The population of the Ethiopian highlands is likely to be isolated from *leucostigma* further south by the broad belt of relatively low-lying land extending from southern Sudan through northern Kenya to the Indian Ocean. However, there are no other obvious gaps in the distribution of *leucostigma* from Kenya to Zimbabwe. Thus six populations are recognized: the population of the nominate form in southern Africa; the population of *maclatchyi* in Gabon; a population in Guinea; a population of *leucostigma* in Cameroon and Nigeria; a population of *leucostigma* in Ethiopia; and the main population of *leucostigma* in eastern and south-central Africa.

Population size:

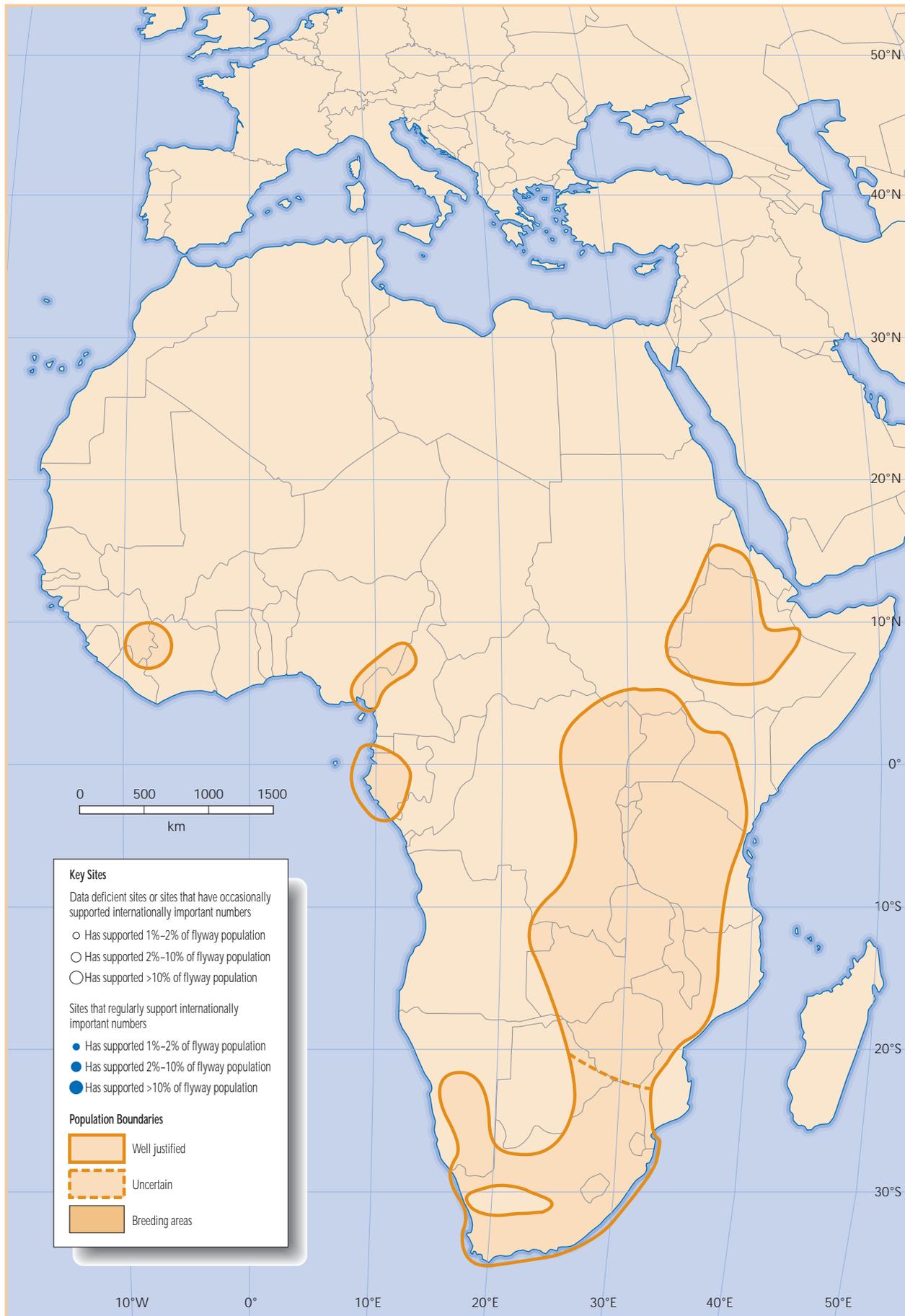
- **Southern Africa (*sparsa*): 20,000–50,000. Provisional numerical criterion 350.**

The nominate form is thought to be commoner than *leucostigma*, and is still widespread and relatively plentiful in southern Africa. In the 1970s, the population of *sparsa* on artificial impoundments in Matabeleland, Zimbabwe, was estimated to be in the thousands, but the total population in Zimbabwe, including those on rivers, was not thought to exceed 10,000 (Ewbank, 1993). In Botswana, it is an uncommon localized resident in the east (Newman, 1989), although locally common on stretches of the Limpopo (Penry, 1994). The total population in Lesotho has been estimated at 1,000–10,000 individuals, while that in Swaziland has been estimated at 500 breeding adults (Callaghan & Green, 1993). The bird is said to be scarce in Angola and Namibia. The highest count during the African Waterfowl Census (1991–94) in southern Africa has been only 104 birds in 1993, but the habitat of this species is very poorly covered by the Census. Callaghan and Green (1993) state that the total population in southern Africa seems certain to exceed 20,000.

- **Eastern Africa (*leucostigma*): 10,000–25,000. Provisional numerical criterion 175.**

Widespread but nowhere numerous. Reported to be a fairly common breeding resident in Sudan in 1987 (del Hoyo *et al.*, 1992). Thinly and locally distributed in sedentary pairs in the highlands

AFRICAN BLACK DUCK *Anas sparsa*



of Kenya and Tanzania, and in southwestern Uganda (Britton, 1980). Only one was recorded in Tanzania during very extensive waterfowl counts in January 1995, and none was recorded during the annual waterfowl censuses in eastern Africa between 1991 and 1994. However, it has been suggested that the population in Tanzania alone is in the range 5,000–10,000 (N. Baker, *in litt.*). *A. sparsa* is regular in small numbers along rivers and streams above 600 m in Malawi (Benson & Benson, 1977). It is very localized and nowhere numerous in Zambia, but absent only in the west (Benson *et al.*, 1971).

- **Ethiopia (*leucostigma*): 2,000–10,000. Provisional numerical criterion 60.**

The species is said to be frequent to common on highland streams above 1,000 m (Urban & Brown, 1971). Although none has been recorded during recent mid-winter waterfowl counts more extensive surveys could easily reveal the species to be more common.

- **Cameroon highlands/eastern Nigeria (*leucostigma*): 1,000–5,000. Provisional numerical criterion 30.**

Louette (1981) describes it as a rare resident in the Cameroon Highlands and on the Adamawa Plateau (Lake Bini). *A. sparsa* was first recorded on the Mambilla Plateau in Nigeria in 1974 (Elgood, 1982), and since then has been recorded several times along the Kam, Gashaka and Yim Rivers and elsewhere on the plateau (Elgood *et al.*, 1994).

- **Guinea: Probably less than 100 (J.F. Walsh, *in litt.*). Provisional numerical criterion 1.**

A tiny population of *A. sparsa* was discovered along the Djilemba and Gabe Rivers draining the Massif de Soseri in southeastern Guinea in October/November 1984 (Walsh, 1985). No birds were located in this area during a brief survey in 1985, and the area does not appear to have been surveyed since then.

- **Gabon (*maclatchyi*): 1,000–5,000. Provisional numerical criterion 30.**

Ellis-Joseph *et al.* (1992) give the population as over 1,000, and this figure is followed by Rose & Scott (1994). Louette (1981) described the bird as a rare resident in lowland Gabon, e.g. at Mount Tandu, Mouila.

Habitat/ecology:

Anas sparsa is a species of rivers, streams and mountain bogs. It lives in pairs or small parties mostly along streams and rivers with stony bottoms in well-wooded valleys, but also on exposed streams and bogs on mountain plateaux up to about 4,250 m, and, to a lesser extent, on sandy-bottomed estuaries, dams and shallow pools in open country. Breeding commonly occurs on small islands in rivers and streams. Territorial pairs forage only in their territory, which is usually less than one hectare in extent (Brown *et al.*, 1982). In South Africa, and presumably elsewhere, some birds move from rivers to large open waters, especially dams, to roost, returning to rivers in the early morning. In Zimbabwe, birds move on to dams during the cold dry and hot dry periods when natural streams dry up. The birds have limited flight capability during the post-nuptial moult.

Conservation status:

Both the nominate form and *leucostigma* are listed as 'vulnerable' by Ellis-Joseph *et al.* (1992), but these authors acknowledge that the status of the populations is unclear. They suggested that the principal threats to both subspecies were hunting and habitat loss. The species is considered likely to be decreasing in East Africa, given the extent to which its habitat has been destroyed in recent years (L. Bennun, *in litt.*). Deforestation is known to be a major threat to the species in Kenya, and this may be the case in some other countries in the region (Callaghan & Green, 1993). In southern Africa, numbers are more likely to be stable. The frequent records from artificial impoundments, particularly ponds constructed for fly-fishing, suggest that the species can adapt to these new habitats, and, as a result, may be increasing locally. Numbers in Zimbabwe are thought to be stable (Ewbank, 1993). No information is available on trends in the isolated populations in the Cameroon highlands, Ethiopia and Guinea.

Very little is known about the status of *A. s. maclatchyi*, but threats are thought to include hunting and habitat loss.

Network of key sites:

No key sites can be identified for any of the 6 populations of this riverine woodland species, despite comparatively low site selection criteria.

NORTHERN PINTAIL

Anas acuta

Subspecies:

Monotypic. *A. eatoni* of Kerguelen and Crozet Islands is sometimes considered to be a subspecies of *A. acuta*.

Distribution:

Holarctic, with a wide breeding distribution across North America and northern Eurasia. In Western Eurasia, the species breeds mainly in the northern tundra, forest-tundra and forest-steppe zones between 60° and 70°N, although in the east it also extends south into the semi-desertic region around the Sea of Azov and Caspian Sea. The winter distribution of *A. acuta* originating from Western Eurasia is centred mainly on the Sahel region of West Africa, although significant numbers also winter in northwest Europe, the Mediterranean Basin, eastern Africa and Southwest Asia south to the Gulf. Very few individuals remain throughout the winter in central Europe and on the northern Black Sea coasts. In Africa, the species occurs commonly south to Senegal, Mali, Nigeria, Chad, Sudan and Kenya, with smaller numbers reaching Ghana, Cameroon, Uganda and Tanzania; stragglers have reached Rwanda, Burundi, Zambia, Zimbabwe, Botswana and Transvaal.

Movements:

Highly migratory, wintering in temperate regions south to the tropics; regularly recorded south of the Equator in East Africa. Moulting migrations are frequent. The main breeding areas of *A. acuta* wintering in both Western Eurasia and Africa are situated in Russia, principally in the tundra, forest-tundra and forest-steppe of western and central Siberia. However, most of the birds in the relatively small population wintering in northwest Europe originate from the Baltic States, Scandinavia and Iceland, as well as from local, restricted breeding populations in countries further south in the region. Cold weather movements have been recorded in northwest Europe, with some movement of birds out of Dutch, German and Danish coasts during cold spells, and corresponding increases in northern France. Substantial numbers of birds may move as far as Iberia during prolonged periods of cold weather (Ridgill & Fox, 1990), but it seems that birds from this population rarely cross the Sahara to the West African wintering grounds.

The distribution and numbers of *A. acuta* wintering in the Mediterranean basin and the Sahel zone are variable and may fluctuate as a consequence of rainfall and river flows. Wide fluctuations in numbers in the Mediterranean and the three main basins in the Sahel zone (Senegal, Niger and Chad) suggest that there are substantial interchanges between these four basins, and perhaps also between these and the wetlands in Sudan and Ethiopia (Monval & Piro, 1989). Ringing recoveries have shown that birds wintering in the Senegal Delta originate from breeding grounds in Russia on both sides of the Urals east to the Ob basin (Roux, 1981). The recoveries of birds ringed in Senegal show little difference in distribution from those ringed in Mali, with recoveries stretching as far east as 70°–90°E. Large numbers of *A. acuta* are recorded in Egypt in autumn and spring, and this is probably one of the main migration routes of the species from western Siberia to the Sahel zone. Out of a total of 48 recoveries involving birds ringed or recovered in Egypt, 13 came from moulting areas in the Volga Delta and 30 from other areas east of the Urals and Caucasus, including 15 from the basins of the Ob and Irtysh rivers (60°–88°E). Single birds were recovered in Turkey and Iraq, and only three came from Europe (singles in Albania, Finland and the Netherlands) (Goodman & Meininger, 1989). Ringing recoveries of *A. acuta* in Iran suggest that most of the birds passing through the south Caspian region originate from the basins of the Ob and Irtysh (east to 86°E) and moult in the north Caspian region; five birds had been ringed on breeding grounds between 75°E and 86°E, and seven had been ringed at the moulting areas in the Volga Delta. Birds ringed on autumn passage in the Volga Delta have been recovered from Senegal to Iran.

Population limits:

There is clearly a considerable amount of overlap on the breeding grounds between all wintering groups of *A. acuta* in Western Eurasia and Africa, and perhaps also within the course of a single winter, as birds move in response to hard weather in northwest Europe or severe drought in the Sahel. Thus no discrete populations are identifiable, and indeed it seems likely that none exist. However, for practical reasons

NORTHERN PINTAIL *Anas acuta*



the Western Eurasian populations of *A. acuta* are divided into three main groups: a northwest European wintering group, a Black Sea/Mediterranean/West African wintering group, and a Southwest Asian/eastern African wintering group. These groups follow the traditional split of Anatidae populations according to the main wintering regions, except that the birds wintering in the Mediterranean Basin are lumped with those wintering in West Africa in a single, large population. *A. acuta* wintering in the Black Sea/Mediterranean region are thought to originate from breeding grounds in European Russia, Finland and western Siberia east to 90°E degrees (Cramp & Simmons, 1977; Monval & Pirot 1989), i.e. in the same areas as those wintering in West Africa. This total overlap in breeding grounds and the large year to year fluctuations in the numbers of *A. acuta* wintering in the Mediterranean region and in West Africa strongly suggest that only a single West African/Mediterranean wintering population is involved.

Population size:

- **Northwest Europe: 60,000 (see Annex 1). 1% level 600.**
- **Northeast Europe/Black Sea/Mediterranean/West Africa (east to Chad): 1,200,000 (see Annex 1). 1% level 12,000.**

Major concentrations in West Africa have included up to 247,000 in the Senegal Delta, 495,000 in the Central Niger Delta and 526,000 at Lake Chad. The highest mid-winter count in West Africa was 838,000 in 1987.

- **Western Siberia/Southwest Asia/northeast and eastern Africa: 700,000. 1% level 7,000.**

The wintering population in Southwest Asia has been estimated at 650,000 (Perennou *et al.*, 1994). Monval & Pirot (1989) suggested a figure of 200,000–300,000 for the wintering population in eastern Africa. More recently, Urban (1993) has estimated the total population wintering in eastern Africa (excluding Egypt) to be 31,000–108,000, but notes that the number may be as high as 200,000–300,000 in some years. *Anas acuta* is very abundant in southern Sudan where it winters in substantial numbers (Nikolaus, 1987); it is common to abundant on Ethiopian plateau lakes, and is generally scarce but occasionally abundant in Somalia. Some thousands of birds winter on the major lakes in Kenya, and a few hundred to about 1,000 birds winter in Tanzania and Uganda. Only 347 were recorded in Tanzania during very extensive waterfowl counts in January 1995. The highest mid-winter count in eastern Africa was 14,745 in 1983. The present estimate of 700,000 for the entire 'flyway' is based on the figure of 650,000 for Southwest Asia, with an additional 50,000 in northeast and eastern Africa.

Habitat/ecology:

Anas acuta is a bird of shallow freshwater marshes, small lakes and rivers, preferably with dense vegetation cover in open country. In winter, it forms large flocks on brackish coastal lagoons, in estuaries and deltas, and on large inland lakes. In northwest Europe, *A. acuta* is amongst the most concentrated of waterfowl in winter, with half the population confined to just thirteen sites (Ridgill & Fox, 1990). Males leave the breeding areas in late May and early June, at the start of incubation, and may undertake extensive moult migrations. Large concentrations of moulting males occur in the Netherlands, the lower Ob valley, the Yamal Peninsula and the Volga Delta, but small gatherings of moulting birds are also frequent. The wing moult takes place between early June and late August, during which the birds are flightless for about four weeks. Dispersal from the moulting areas and breeding grounds takes place from mid-August to early September. In Europe, the main autumn passage occurs from mid-September to November, with birds reaching the wintering areas in October and November. The return migration in spring begins in February in West Africa and in late February and March in western Europe. Birds arrive back on the breeding grounds in Russia in April and May.

Conservation status:

The population wintering in northwest Europe has shown a pattern of slow decline over the past twenty years (Rose, 1995). Numbers wintering in the west Mediterranean showed a clear increase from 1969 to 1973 followed by a steady decline until 1982, since when numbers have fluctuated widely (Monval & Pirot, 1989). Numbers wintering in the Black Sea/east Mediterranean have shown a significant decline since counts began in 1967, with numbers falling at an average rate of 6.37% per annum (Rose, 1995). Breeding numbers also appear to have decreased in many European countries, most importantly in southern and central Russia and Finland (Tucker & Heath, 1994). Trends in the population wintering

in Southwest Asia and northeast Africa are unknown. However, Krivenko (1993) reports a slight decrease in the numbers at the end of the breeding season in western and central Siberia between 1972 and 1989.

Recent declines in the European population have been attributed primarily to wetland loss and degradation both on the breeding grounds and in the wintering areas. Decreases in the Mediterranean have been attributed to the recent large-scale loss and degradation of wetlands in this region, while major river diversion and irrigation schemes in Niger and Nigeria pose a threat to some of the major wintering areas for the species in Africa (Tucker & Heath, 1994).

Network of key sites:

When not breeding, *A. acuta* is almost always found in large flocks so it is very suitable for the establishment of a key sites network. There are even some very major breeding concentrations such as Western Chertovo lakes in Western Siberia where 172,500 *A. acuta* are estimated to breed. The major gaps in the current key site networks relate to passage sites, which must be crucial to such long distance trans-Saharan migrants. It is essential that more knowledge of the movements between breeding and wintering grounds is obtained so that the 20–25 currently identified staging sites can be increased. The Wadden Sea is extremely important for *A. acuta* arriving to winter in northwest Europe and the Volga Delta is equally important for the Caspian/East Africa wintering population during both passage and moult. Very large concentrations also occur midway along the northwest European migratory route at the German Baltic Coast, Lubana Lowlands in Latvia, and at Pskovsko Chudskoye Lakes in Russia near the Latvia border. Important sites like these must exist in other flyways. By far the largest concentration recorded at any time appears to be in autumn at the mouth of the River Ob where up to 800,000 *A. acuta* are thought to gather.

In northwest Europe over 60 key sites provide over 65% of the wintering grounds for the population in most winters, but for the Mediterranean/West Africa wintering population the effectiveness of the key sites network is more difficult to assess because of the year to year variation in the use of West African wintering areas. Nevertheless, 22 key wintering sites in the West African Sahel plus 12 in the Mediterranean must constitute quite a valuable network and harbour more than 50,000 of the estimated 1,200,000 individuals in most winters. In the Caspian and East Africa 31 key wintering sites provide wintering grounds for at least 140,000 of the estimated 700,000 individuals and probably more in most winters.

Protection status of key sites:

Most of the important wintering sites for which protected status information was supplied are protected to some degree, and virtually all important passage sites listed are protected.

EATON'S PINTAIL

Anas eatoni

Subspecies:

Polytypic. Two subspecies have been described: the nominate form of Kerguelen Island and *A. e. drygalskii* of the Crozet Islands. Both forms are considered by some authors to be subspecies of the widespread *Anas acuta* (e.g. Cramp & Simmons, 1977, Johnsgard, 1978, Madge & Burn, 1988), while other authors treat them as two separate species: Kerguelen Pintail *A. eatoni* and Crozet Pintail *A. drygalskii*.

Distribution:

Confined to Kerguelen and Crozet Islands in the southern Indian Ocean. *A. e. eatoni* is confined to Kerguelen Island and its outlying islands. At least 34 birds were introduced from Kerguelen to Amsterdam Island, but although breeding occurred, the population soon died out, probably because of predation by feral cats and rats (Green, 1992). *A. e. drygalskii* is confined to the Crozet Islands, occurring on all five of the vegetated islands: Ile de la Possession (Possession Island), Ile de l'Est (East Island), Ile aux Cochons (Pig Island), Ile des Pingouins (Penguin Island) and Iles des Apotres (Apostle Islands).

Movements:

Mainly sedentary, although there is some local movement of birds to the coast in winter. There is some evidence of movement between the main islands within the Crozet group, and it is believed that the small and declining population on Pig Island is now being maintained by immigration from the Apostles.

Population limits:

Only two populations are recognized, corresponding to the populations of the two subspecies. Rose & Scott (1994) recognized four populations of *drygalskii* in the Crozet Islands (Pig/Apostles, Penguin, Possession and East), but as some inter-island movements are known to occur and as the greatest distance between neighbouring islands is less than 100 km, there seems little justification for this treatment.

Population size:

- **Kerguelen (*eatoni*): 10,000–40,000. Provisional numerical criterion 250.**

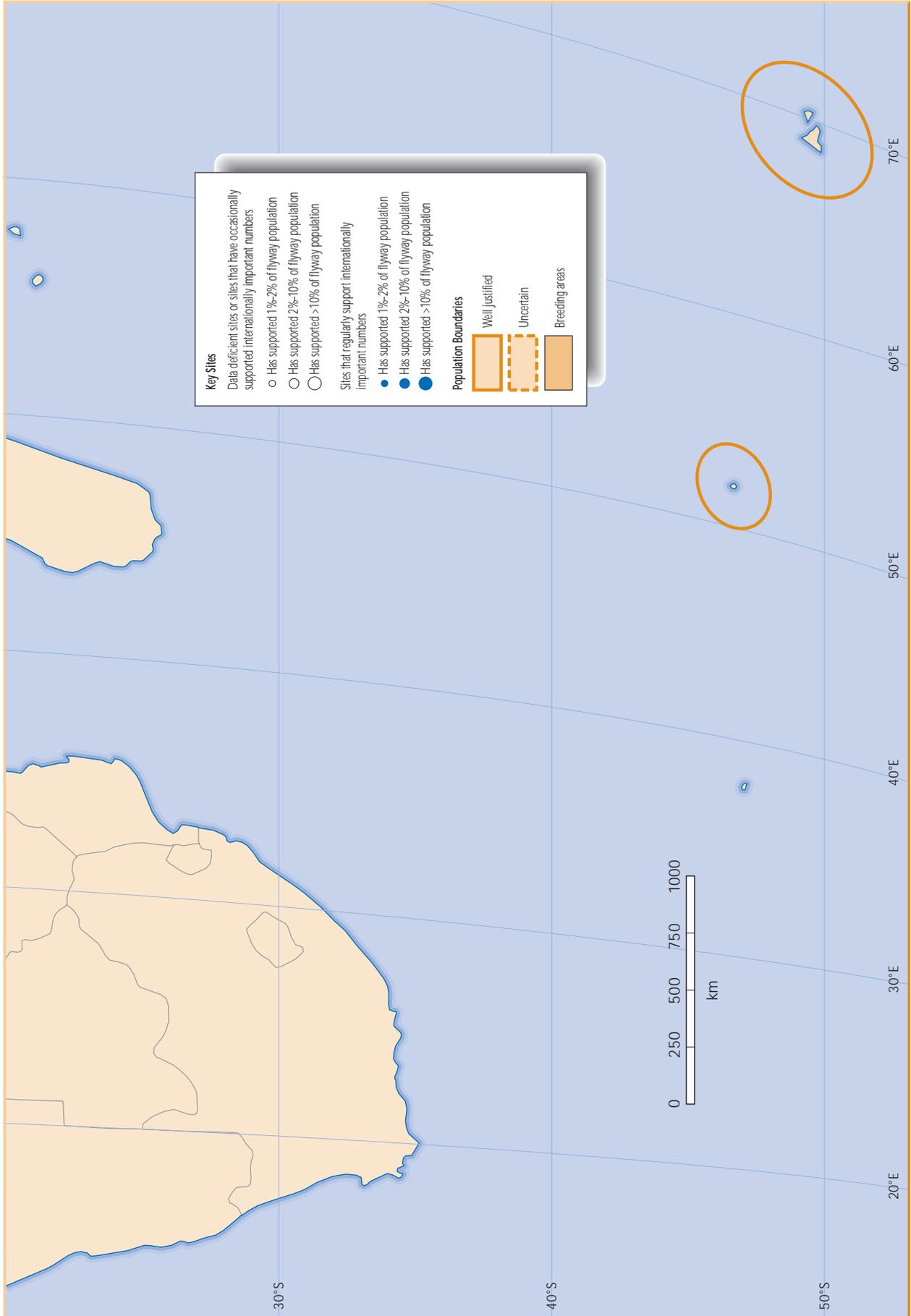
Rose & Scott (1994) give a population estimate of 50,000–60,000 individuals based on an estimate of 15,000–20,000 pairs given by Thibault & Guyot (1988) for 1982–85. Stahl *et al.* (1984) estimated the population at 40,000 individuals, on the basis of an extrapolation of densities of *A. e. drygalskii* in the Crozet Islands. However, J.F. Voisin (*in litt.* in Green, 1992) considers 10,000 to be a more likely figure. In view of the obvious uncertainty in numbers, and as there are reports of a decline in population in recent years, the lower estimate of 10,000–40,000 is preferred to that given by Rose & Scott (1994).

- **Crozet Islands (*drygalskii*): 1,400 (Green, 1992). 1% level 14.**

In 1966, the total population was estimated at 1,000–2,000 birds, with 400 on Possession Island, 30–50 on Pig Island and at least 400 on East Island (J.F. Voisin, *in litt.*; P. Jouventin, *in litt.*, in Green, 1992). Stahl *et al.* (1984) estimated the population at 1,350, with 800 on East Island, 200 on Possession Island, 200 on Penguin Island and 150 on Pig Island and the Apostles. These figures, quoted in Green (1992), were followed by Rose & Scott (1994). Thibault & Guyot (1988) give the population in 1980–82 as 600–700 pairs, with 400 pairs on East Island, 100 pairs on Possession Island, and only about 50 individuals on Pig Island. The estimate of 1,400 is adopted here as the most recent figure available.

Habitat/ecology:

Anas eatoni occurs in peat bogs, on freshwater lakes in the interior (Kerguelen), on coastal lagoons and along the sea shore, especially in sheltered bays. The birds spend more time on the ground than *A. acuta*, walking and running with ease and perching on rocks and boulders, although they fly well (Marchant & Higgins, 1991). They are generally shy and wary, avoiding areas of human habitation. The species is fairly sociable outside the breeding season, usually occurring in small parties and occasionally in concentrations of up to 200 on Kerguelen. The breeding season is from November to the end of January or February.



Conservation status:

Anas eatoni eatoni is listed as 'vulnerable' by Green (1992) and Green (1996). The population on Kerguelen was thought to be stable in the early 1980s, but vulnerable to predation from introduced cats and rats. The species was formerly much hunted by sealers and scientific expeditions, and since the establishment of a base in 1950, some 200 to 300 birds have been hunted each year (Green, 1992). This hunting, which takes place between May and October, has not been considered to pose a serious threat to the population (Thibault & Guyot, 1988). J.F. Voisin (*in litt.*) and P. Jouventin (*in litt.*) suggest that the population may now be declining, and give the primary threats as hunting and predation by feral cats and rats. Cats were introduced on the main island in 1956 to control the population of rats and mice, and are now spreading throughout the island, despite several eradication campaigns (Jouventin & Micol, 1995).

Anas eatoni drygalskii is listed as 'endangered' by Green (1992) and Green (1996). Thibault & Guyot (1988) considered the numbers to be stable, although they noted that the birds were especially vulnerable to predation from introduced cats and rats, with only the populations on islands free of cats and rats (the Apostles, Penguin Island and East Island) thriving. The population on Possession Island, which has introduced cats and rats, was reported to be declining by Stahl *et al.* (1984), while the population on Pig Island, which has feral cats, has been reduced to only 1–5 breeding pairs (Green, 1992). The continued survival of the population on Pig Island is now thought to depend on regular immigration of birds from the Apostle Islands (Thibault & Guyot, 1988; J.F. Voisin, *in litt.* 1991).

Network of key sites:

No information is available on key sites for *A. e. eatoni* in Kerguelen. East Island in the Crozet group is free of introduced predators, and supports about 60% of the total population of *A. e. drygalskii*.

Protection status of key sites:

The main island of Kerguelen (Grande Terre), where the majority of the population of *A. a. eatoni* reside, is unprotected. Some of the small offshore islands (Ile de Croy, Ile du Roland and Iles Leygues) are included within in a 'Parc National Antarctique Francais' and a Specially Protected Area, while some of the islands in the Golfe du Morbihan have been classified as a Specially Protected Area. In the Crozet Islands, Ile de l'Est (East Island), Ile aux Cochons (Pig Island), Ile des Pingouins (Penguin Island) and Iles des Apotres (Apostle Islands) are part of the 'Parc National Antarctique Francais' and a Specially Protected Area (Jouventin & Micol, 1995).

RED-BILLED DUCK

Anas erythrorhyncha

Subspecies:

Monotypic.

Distribution:

Confined to the Afrotropical Region. The species occurs widely in eastern and southern Africa from southern Sudan and Ethiopia to East Africa and southern Zaire and southwards to South Africa; it also occurs in Madagascar.

Movements:

The species is partly sedentary and partly nomadic throughout its range, but also undertakes lengthy movements during the dry season. Birds ringed at Barberspan, western Transvaal, have been recovered as far south as Cape Town (1,126 km) and as far north as Kafue Flats in Zambia (1,100 km) and Lubango (Sa da Bandeira) in Angola (1,800 km). Birds ringed in Zambia have been recovered in South Africa, Zimbabwe, Botswana and Namibia. In Kenya, numbers peak during the northern winter, with birds arriving from unknown sources to supplement the large resident population; these birds are thought to come from the north or northeast (Brown *et al.*, 1982). There is also some evidence of regular movements between the African mainland and Madagascar; the species is common in Madagascar, but there are very few breeding records, and Langrand (1990) implied that it was primarily a non-breeding visitor from Africa.

Population limits:

The species has a wide range in eastern and southern Africa from Ethiopia to the Cape, with no major gaps in its distribution. However, there is probably little mixing between the eastern and southern African populations. The species is most abundant in semi-arid areas, and there is little suitable habitat for it in northern Zambia, northern Malawi, northern Mozambique and southern Tanzania. The large number of ringing recoveries from southern Africa show no evidence of movement between eastern and southern Africa, and possible movement is not supported by regional count data (R.J. Douthwaite, *in litt.*). Furthermore, the two groups of birds breed at different times of the year, with those in southern Africa (from Zambia southwards) breeding during the rains (December–March) and those in eastern Africa breeding in June (D.R. Aspinwall, *in litt.*). There seems a good case, therefore, for treating the southern and eastern African populations separately.

The birds occurring in Madagascar are treated as a separate population, although it is possible that there is some movements of birds between Madagascar and the African mainland. Despite the fact that *A. erythrorhyncha* is one of the two commonest ducks in Madagascar, there appear to be only two reported instances of nesting, in 1987 and 1988 (Langrand, 1990). Thus many of the birds in Madagascar may be migrants from Africa, although there are as yet no ringing recoveries to support this.

Three populations are therefore recognized: a population in southern Africa north to southern Zambia, southern Malawi and southern Mozambique; a population in eastern Africa; and a population in Madagascar.

Population size:

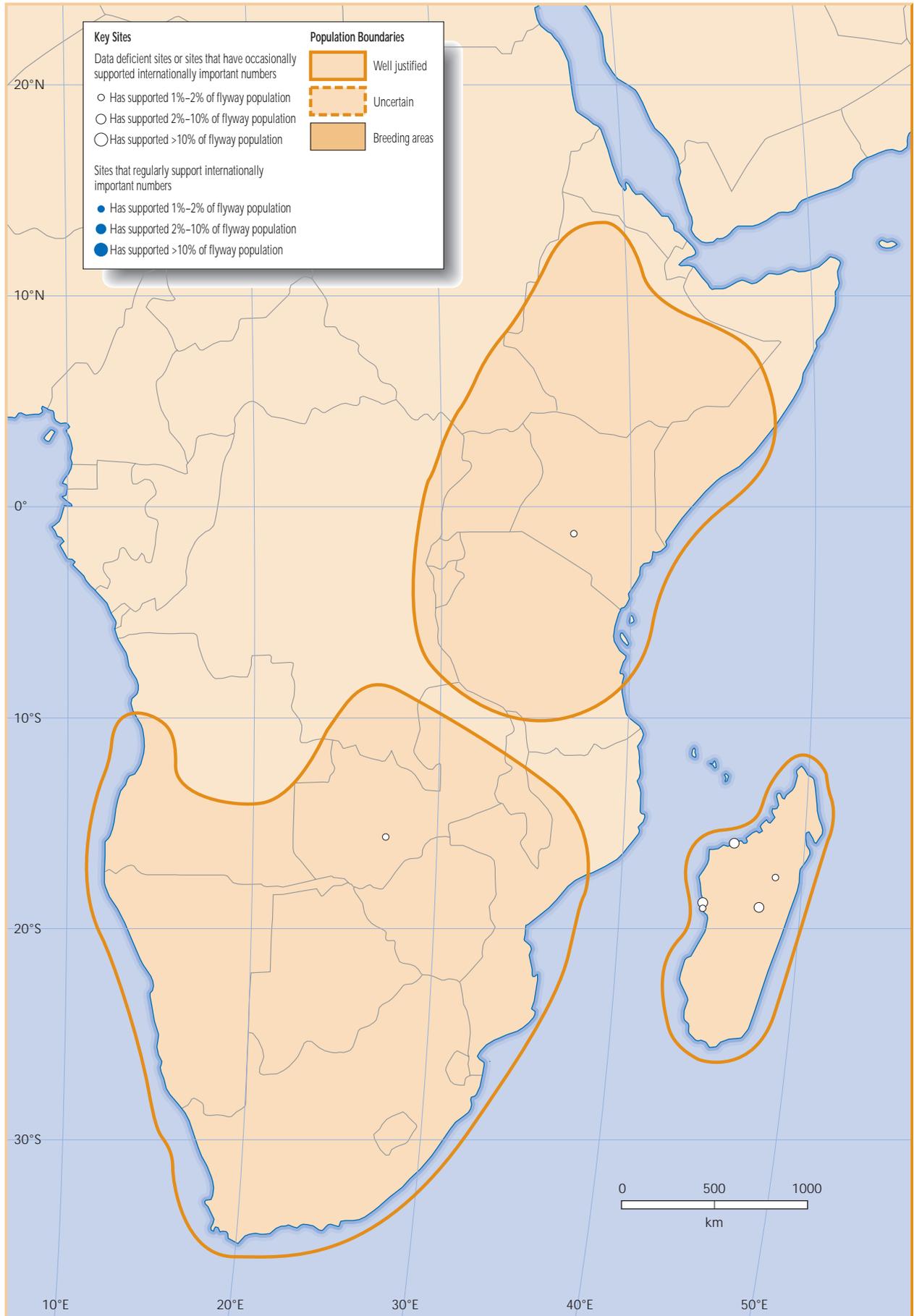
- **Southern Africa: 500,000–1,000,000. Provisional numerical criterion 7,500.**

The most abundant duck in southern Africa. Widespread and common to very common in southern Malawi (Benson & Benson, 1977), southern Zambia (Benson *et al.*, 1971) and northern and eastern Botswana (Newman, 1989; Penry, 1994), and a very common resident throughout southern Africa (Sinclair *et al.*, 1993). High counts have included: up to 29,000 at Kafue Flats, Zambia (August 1971); 1,200 at Witwatersrand, southern Transvaal; 4,712 at Barberspan, western Transvaal; and 500,000 at Lake Ngami, Botswana. The highest count during the African Waterfowl Census (1991–94) in southern Africa was 18,733 in July 1993.

- **Eastern Africa: 100,000–300,000. Provisional numerical criterion 2,000.**

Common to abundant in suitable habitat. Described as frequent to locally common in Ethiopia (Urban & Brown, 1971), fairly common in southern Somalia (Ash & Miskell, 1983), and common in much of

RED-BILLED DUCK *Anas erythrorhyncha*



Kenya, Tanzania and Uganda (Britton, 1980). A total of 976 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 3,423 in January 1994.

• **Madagascar: 15,000–25,000. Provisional numerical criterion 200.**

One of the two commonest ducks in Madagascar, although there are apparently only two definite breeding records (Langrand, 1990). The species occurs throughout the island, but is much commoner in the west and south and on the High Plateau than in the east, where it is uncommon. Concentrations of up to several hundreds birds have been recorded, e.g. 600 were present at Lake Bemamba in July–August 1992 (Young *et al.*, 1993a), and 481 at Lake Amboromalandy in October 1993 (F. Hawkins, *in litt.*). A total of 1,562 was recorded during the African Waterfowl Census in Madagascar in July 1993.

Habitat/ecology:

A. erythrorhyncha is an unspecialized surface-feeding duck, frequenting fairly shallow fresh waters, including lakes, dams, rivers and flooded areas. It favours open, shallow, fresh waters containing large amounts of submerged, floating and peripheral vegetation, but also occurs on large dams and other similar impoundments, and often feeds at night in rice-fields. During the dry season, the species regularly occurs, often in very small numbers, at small scattered pans in semi-arid regions (T. Dodman, *in litt.*). In general, however, it is highly social, flock sizes ranging from a few hundred birds to many thousands. Throughout its range, peak gatherings occur towards the end of the dry season or at the start of the rains. In southern Africa, breeding takes place between December and April.

Conservation status:

An increase has been reported in Zimbabwe, especially in the north (D.V. Rockingham-Gill, *in litt.*). However, the species is probably now decreasing in Madagascar as a result of habitat alteration (O. Langrand, *in litt.*).

Network of key sites:

Four key sites on Madagascar support over 10% of this population and provide the basis for a key sites network. Only one key site in each of the southern and eastern Africa populations can be identified at present.

Protection status of key sites:

None of the key sites are adequately protected on Madagascar. Kafue Flats in Zambia is protected but the Ethiopian wetlands are not protected.