AVOCET
RECURVIROSTRA AVOSETTA

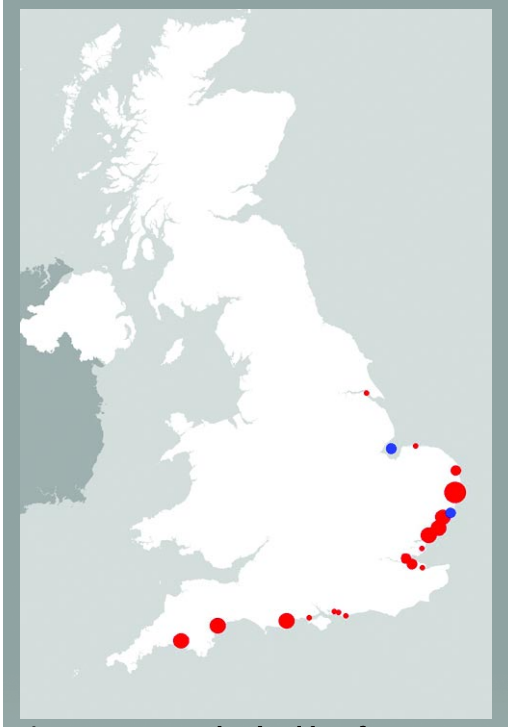

Figure 5.18: **Mean site densities of Avocet**

Avocets first started to winter regularly in the UK in 1947, the same year as the resumption of breeding in Suffolk. Wintering birds were initially found mostly on the Tamar Complex and Exe Estuary in the south-west but the range has increased in recent years, with the largest numbers now in the south-east (*Wildfowl & Wader Counts*). To date, no regular wintering occurs in Ireland. Birds form post-breeding moulting flocks on favoured sites, with British breeders joining flocks both at home and across the North Sea. From late October, Avocets move to their wintering sites. Most birds wintering in Britain (all of which are on estuaries) are thought to be British breeders, although some of the latter have been found to move as far south as Morocco (Wernham *et al.* 2002). Avocets feed mostly on invertebrates, such as small crustaceans, worms and insects, obtained by sweeping the head and bill from side to side through the water column and soft substrates (Snow and Perrins 1998).

Avocets were recorded at 18 of the 62 sites under review, with the species being noted on 4% of count sections and on 1% of visits. Birds were found throughout the south-east of the country, from the Humber Estuary to the Tamar Complex. Within this range, notable gaps in LTC occurrence were at the Stour and Orwell Estuaries, the Blackwater Estuary, several sites in the Solent (which remains sparsely occupied at the current time, although Pagham Harbour appears to be becoming a regular site) and the Kingsbridge Estuary. There was no appreciable difference between months in the proportion of visits recording the species. The proportion of Avocets recorded as feeding at low tide was 91%. Examining site-based distribution maps for Avocets shows how restricted the species was at many sites. At a number of sites within the broader range, numbers were very low, but even where more numerous, the range was highly localised. For example, the Avocets on the Thames Estuary were almost all found off East Tilbury. Only at the Medway Estuary and the Blyth Estuary (Suffolk) – the latter a small site – were birds more widespread.

Figure 5.18 shows the south-easterly winter distribution of the species during the late 1990s, with a set of closely neighbouring sites between Suffolk and North Kent and then more scattered sites along the south coast. At a sectional level, the top 1% of sections surveyed supported densities in excess of 0.43 birds per hectare.

A total of 16 SPAs in the UK have been designated for their value to wintering Avocets (Stroud *et al.* 2001). Of these, two were not surveyed by the LTCs during the period under review: the Alde–Ore Estuary and the Wash. At no additional sites did site totals exceed the 1% national threshold value.

RINGED PLOVER
CHARADRIUS HIATICULA

The Ringed Plover is a widespread although seldom numerous species which breeds and winters around much of the UK coastline, with very few inland (Lack 1986). Only about 27% winter on estuaries, most birds preferring rocky and sandy coastlines (Rehfisch *et al.* 2003). Birds wintering around the UK coastline comprise a mixture of UK breeders and immigrants from the Baltic Sea and Wadden Sea. More northerly breeding birds, from Canada to Fennoscandia, pass through the UK to and from wintering grounds in Spain and West Africa (Wernham *et al.* 2002). Ringed Plovers feed mostly upon polychaete worms, crustaceans and molluscs, taken from or near to the surface (Snow and Perrins 1998).

Ringed Plovers were recorded at 59 of the 62 sites under review, with the species being noted on 37% of count sections and on 17% of visits. The three sites from which Ringed Plovers were unrecorded were the small estuaries of the Fowey and the Clwyd and the partially covered Tamar Complex; further fieldwork at all of these sites would doubtless reveal it to be present. There was no appreciable difference between months in the proportion of visits on which the species was recorded. The proportion of Ringed Plovers recorded as feeding at low tide was 92%, predictably high for this intertidal specialist. Ringed Plovers displayed a variety of within-site distributional patterns. At many sites, birds were widely distributed with no strong preferences for any parts of the site, such as at the Blackwater Estuary or Inland Sea. At other locations, however, birds were more localised. These localised patterns more frequently involved concentrations towards the mouth of the estuary (*e.g.* most birds on the Dee and Mersey Estuaries were found along the North Wirral Shore and the Mersey Narrows) but occasionally the inner estuary was the preferred feeding area, as at the Deben Estuary and Swale Estuary.

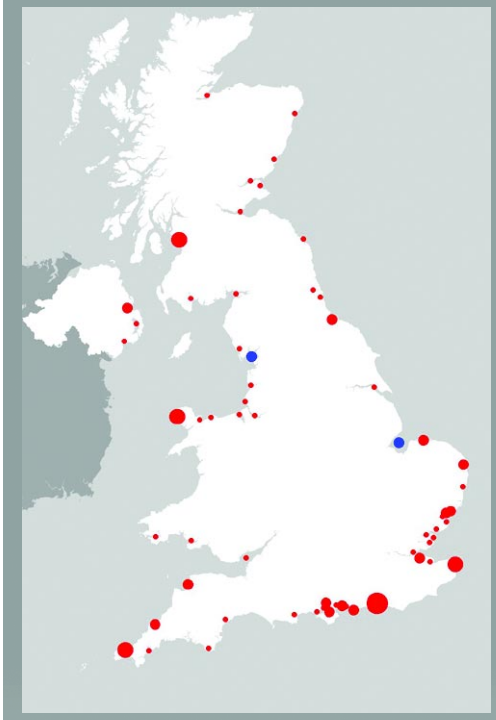

Figure 5.19: **Mean site densities of Ringed Plover**

Figure 5.19 shows the species to be widespread. There was a slight tendency towards higher densities in the south, whilst most of the sites around the Irish Sea supported only low densities, as did those on the east coast north of Norfolk. At a sectional level, 5% of all sections surveyed supported densities in excess of 0.38 birds per hectare, with 1% of sections supporting densities in excess of 1.00 birds per hectare.

A total of 22 SPAs in the UK have been designated for their value to wintering Ringed Plovers (Stroud *et al.* 2001). Of these, six were not surveyed by the LTCs during the period under review, including the two estuaries of Morecambe Bay and the Wash, the other four being non-estuarine coastal SPAs. At no additional sites did site totals exceed the 1% national threshold value.

GOLDEN PLOVER

PLUVIALIS APRICARIA

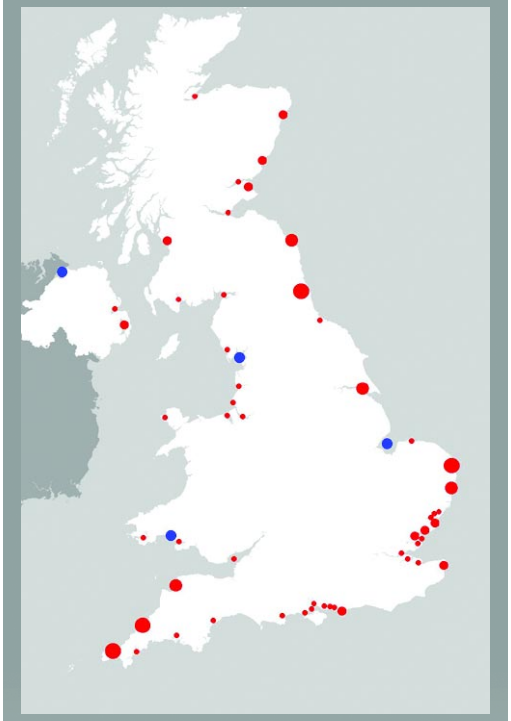

Figure 5.20: **Mean site densities of Golden Plover**

Golden Plovers are widespread in the UK in winter when large flocks congregate on farmland throughout much of the lowlands. Birds also commonly use estuarine habitats outside the breeding season (Lack 1986). The origins of the birds wintering in Britain and Ireland are complex. Icelandic breeders winter in Ireland and western Britain. British breeders winter both in Britain and further south. Birds from Scandinavia and further east also winter in Britain but some pass through to and from wintering grounds further south (Wernham *et al.* 2002). Golden Plovers feed mostly inland upon invertebrates, especially beetles and earthworms, although some plant material is eaten at certain times of the year. Additionally, intertidal molluscs are eaten on estuaries (Snow and Perrins 1998).

Golden Plovers were recorded at 53 of the 62 sites under review, with the species being noted on 22% of count sections and on 8% of visits. Many of the sites at which the species was unrecorded were relatively small. In North Wales, none were noted at the two adjoining sites of Lavan Sands and the Conwy Estuary, an area also devoid of this species during fieldwork for the Winter Atlas. There was no significant difference between months in the proportion of visits on which the species was recorded. The proportion of Golden Plovers recorded as feeding at low tide was 25%, a relatively low figure and assumed to be related to the fact that most Golden Plovers use estuaries as a safe roost site but feed on adjoining farmland. However, there have been recent suggestions that intertidal areas may become more important for foraging as the amount of suitable farmland becomes less (Mason and MacDonald 1999). Although often numerous, the species tended to be highly concentrated at a site. At many of the sites, most of the birds present were found in one or two discrete flocks. However, roughly half of these concentrations were found in the outer half of estuaries and half in the inner half, suggesting that substrate was not an important factor in roost position.

Figure 5.20 reveals somewhat higher densities at estuaries along the east coast and also along the south-west peninsula, with lower densities around the Solent and the Irish Sea in particular. At a sectional level, 5% of all sections surveyed supported densities in excess of 2.90 birds per hectare, with 1% of sections supporting densities in excess of 16.55 birds per hectare. By far the highest numbers were counted at the Humber Estuary.

A total of 22 SPAs in the UK have been designated for their value to wintering Golden Plovers (Stroud *et al.* 2001). Of these, eight were not surveyed by the LTCs during the period under review; including three estuaries (Lough Foyle, Morecambe Bay and the Wash) in addition to the non-estuarine coastal Outer Ards and four inland sites. Additional to the sites overlapping SPAs, site totals exceeding the 1% national threshold value were recorded at the Camel Estuary, Taw–Torridge Estuary and Blyth Estuary (Suffolk).

GREY PLOVER
PLUVIALIS SQUATAROLA

Grey Plovers are found around much of the UK coast in the winter, although seldom inland, but about 95% of the birds frequent estuaries (Lack 1986, Rehfisch *et al.* 2003). All of these birds breed in northern Russia, with more passing through the UK to and from wintering grounds further south (Wernham *et al.* 2002). The British population has increased approximately fourfold since the 1970s (Atkinson *et al.* 2000). Grey Plovers feed on a variety of intertidal polychaete worms, molluscs and crustaceans (Snow and Perrins 1998).

Grey Plovers were recorded at 56 of the 62 sites under review, with the species being noted on 49% of count sections and on 33% of visits. The six sites at which the species was unrecorded by the scheme were mostly quite small. There was no appreciable difference between months in the proportion of visits upon which the species was recorded. The proportion of Grey Plovers recorded as feeding at low tide was 93%, a high figure but very similar to the majority of other intertidal specialist waders. The LTC site maps for Grey Plover reveal a variety of different distribution patterns. Most of the estuaries in the south-east of the UK supported Grey Plovers fairly evenly across much of their intertidal habitats. Elsewhere, the species was more localised, but not consistently so. On most of the sites in the north-east and on the Duddon, Ribble and Dee Estuaries, the outer estuary tended to support higher densities. In the south-west and at Strangford Lough, however, the species was mostly found in inner estuary situations.

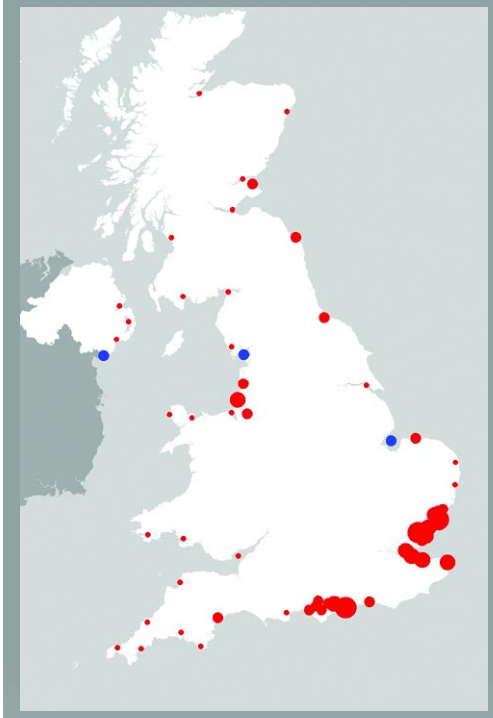

Figure 5.21: Mean site densities of Grey Plover

Figure 5.21 shows the relative site densities at the review sites around the UK and highlights the key areas of the Greater Thames, Solent and, to a lesser extent, Liverpool Bay. At a sectional level, 5% of all sections surveyed supported densities in excess of 0.92 birds per hectare, with 1% of sections supporting densities in excess of 2.91 birds per hectare. Many of the highest absolute counts were recorded at the four adjacent Liverpool Bay estuaries (Ribble, Alt, Mersey and Dee), despite the overall density here being lower than in the south-east.

A total of 28 SPAs in the UK are designated for wintering Grey Plovers, of which 25 overlap to some extent with the LTC sites within this review (the others being Morecambe Bay, the Wash and Gibraltar Point, the last two involving the same birds to a great extent) (Stroud *et al.* 2001). Additional to the sites overlapping SPAs, site totals exceeding the 1% national threshold value were recorded at Pagham Harbour and Pegwell Bay.

LAPWING

VANELLUS VANELLUS

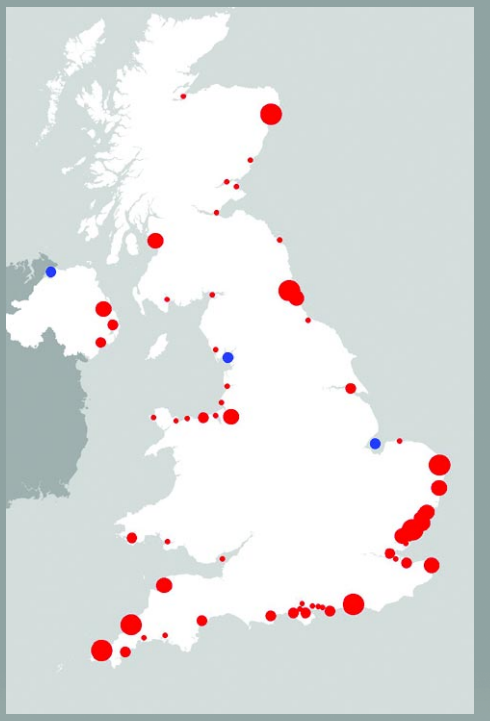

Figure 5.22: Mean site densities of Lapwing

The Lapwing is one of the most familiar waders in the UK and is the most numerous. The species breeds widely, although in declining numbers in recent years in the lowlands, and winters almost everywhere except for the highest land (Lack 1986). The species breeds across the whole of Eurasia. Some British breeders winter locally whilst others migrate south to France and Iberia, especially those from SE England. Some of the more northerly British breeders winter in Ireland. Additionally, continental birds move into the UK in large numbers in the winters, with cold weather prompting often highly visible migration to the west and south (Wernham *et al.* 2002). Lapwings feed, both by day and night, on a wide variety of ground-living invertebrates (Snow and Perrins 1998).

Lapwings were recorded at all of the sites under review, with the sole exception of the Kingsbridge Estuary (a site at which Golden Plover also went unrecorded). The species was noted on 48% of count sections and on 28% of visits. There was a significant decline (χ^2_3=44.14, P<0.001) over the course of the winter in the proportion of visits on which the species was recorded, with 30% of visits in November and December declining to 23% by February, perhaps reflecting the relatively early breeding season of this species. The proportion of Lapwings recorded as feeding at low tide was 30%, similarly low to Golden Plover and again reflecting the principal use of estuarine habitats as a safe roost with birds feeding inland. As for Golden Plover, however, it is possible that intertidal habitats may become increasingly important as foraging areas with a reduction in suitable farmland for foraging (Mason and MacDonald 1999). Within estuaries at low tide, Lapwings tended to have a rather clumped distribution, although there were sometimes many 'clumps', leading to an appearance of a more continuous distribution depending on the scale of representation. About half of the sites had more defined concentrations of birds. For all sites, broad-scale distributions showed either preferences for the inner estuary or showed no preferences; in no cases did the outer estuary support the highest densities.

Figure 5.22 shows the widespread distribution of the species on UK estuaries, with little suggestion of broad-scale geographical differences in estuarine densities. At a sectional level, 5% of all sections surveyed supported densities in excess of 9.30 birds per hectare, with 1% of sections supporting densities in excess of 35.08 birds per hectare. The only counts in excess of 20,000 Lapwings were made on the Humber Estuary.

A total of 38 SPAs in the UK have been designated for their value to wintering Lapwings (Stroud *et al.* 2001). Of these, 11 were not surveyed by the LTCs during the period under review, including four estuaries (Alde–Ore Estuary, Lough Foyle, Morecambe Bay and the Wash) and seven inland sites. At no additional sites did site totals exceed the 1% national threshold value.

KNOT
CALIDRIS CANUTUS

The Knot is an abundant, although relatively localised, wintering wader and one for which the UK has a particular international responsibility. The species is entirely coastal during the winter and about 97% of UK birds occur on estuaries (Rehfisch *et al.* 2003). The vast majority of wintering birds are of the race *islandica*, which breeds in northern Greenland and on the north-east Canadian islands. Some birds of the nominate race also occur, but mostly only on passage. Large numbers of both of these races moult in the autumn on the Wadden Sea, with *islandica* dispersing westwards to Britain and Ireland from October onwards, some of these birds returning to the Wadden Sea in the spring before migrating north to the breeding grounds (Wernham *et al.* 2002). Knot feed on a fairly restricted range of intertidal invertebrates, mostly molluscs (Snow and Perrins 1998).

Knot were recorded at 49 of the 62 sites under review, with the species being noted on 26% of count sections and on 11% of visits. Most of those sites not recording the species were relatively small and often narrow, with Lavan Sands perhaps being the most notable omission. The proportion of visits on which the species was recorded increased significantly (χ^2_3=27.05, P<0.001) over the course of the winter, from 9% in November to 12% in January/February, presumably reflecting the post-moulting arrival of birds from the Wadden Sea. The proportion of Knot recorded as feeding at low tide was 85%, a relatively low percentage compared to the other specialist intertidal waders. On about a third of sites where recorded, Knot were rather scarce. Elsewhere, although the species was sometimes quite widespread and fairly evenly distributed (such as at Dengie Flats or the Eden Estuary), it more frequently exhibited a much more concentrated pattern. In most (but not all) of the latter cases, an outer estuary preference was apparent.

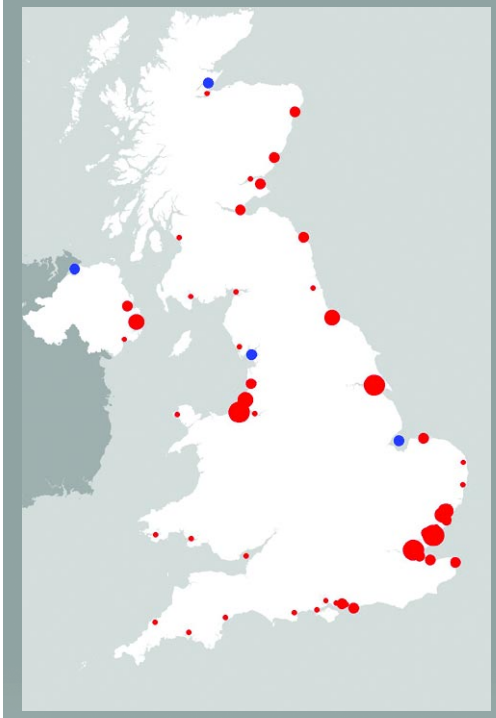

Figure 5.23: **Mean site densities of Knot**

Figure 5.23 shows that Knot occurred in only low densities in south-west Britain, between North Wales and Kent. Higher densities occurred along the east coast and in the north-west. At a sectional level, 5% of all sections surveyed supported densities in excess of 2.58 birds per hectare, with 1% of sections supporting densities in excess of 10.10 birds per hectare. The highest absolute counts at low tide were made on the largest sites, notably at the Dee and Humber Estuaries and Strangford Lough.

A total of 25 SPAs in the UK have been designated for their value to wintering Knot (Stroud *et al.* 2001). Of these, five were not surveyed by the LTCs during the period under review, all estuarine: Cromarty Firth, Lough Foyle, Morecambe Bay, the Wash and Gibraltar Point (the last two involving the same birds to some extent). Additional to the sites overlapping SPAs, site totals exceeding the 1% national threshold value were recorded at the Blackwater Estuary and Medway Estuary.

SANDERLING

CALIDRIS ALBA

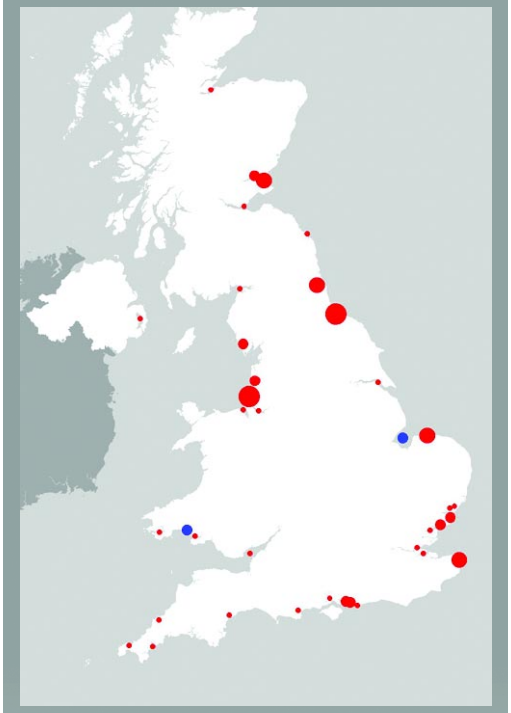

Figure 5.24: **Mean site densities of Sanderling**

The Sanderling is a high arctic breeder that occurs in the UK both as a wintering species and also in higher numbers on passage. Only about 34% of the British total is found on estuaries, most birds preferring open coast habitats, especially sandy beaches along the tideline of which Sanderlings feed on small invertebrates (Rehfisch *et al.* 2003, Snow and Perrins 1998). The Sanderlings wintering in Britain breed in Siberia, Greenland and possibly Canada. It was initially thought that most of the Greenland birds passed through to wintering grounds further south, whereas Siberian birds wintered here. Recent ringing recoveries, however, suggest that the distinction is not so clearcut (Wernham *et al.* 2002). Peak numbers occur at passage periods though, with moulting birds present in the autumn (*Wildfowl & Wader Counts*).

Sanderlings were recorded at 36 of the 62 sites under review, with the species being noted on 9% of count sections and on 4% of visits. Some of the larger sites from which Sanderlings were unrecorded included Belfast Lough, Stour Estuary and Swale Estuary. It is possible that, given the preference of this species for the water's edge, on some of the sites with the widest intertidal flats birds may have been present but not visible from the high water mark. There was no appreciable difference between months in the proportion of visits on which the species was recorded. The proportion of Sanderlings recorded as feeding at low tide was 98%, confirming that this species feeds actively at this state of the tide. Examination of the distributional maps of Sanderling at each site reveals that there was clearly a strong preference for the outer parts of estuaries. Given that this is more prevalently a non-estuarine species, habitually found along sandy beaches, this preference for the sandier parts of estuaries is as expected. Indeed, at some sites, the part of the 'estuary' most densely occupied was in reality an adjacent area of beach (*e.g.* at the Tees Estuary). Only at the Alt Estuary, North Norfolk Coast and Pegwell Bay, all of which are rather 'open-coast' in nature, could Sanderling have been described as widespread.

Figure 5.24 shows the relative site densities at the review sites around the UK. With the exception of the Alt Estuary, site densities were mostly low on the west coast (especially in the south-west) and higher in the east. At a sectional level, 5% of all sections surveyed supported densities in excess of 0.03 birds per hectare, with 1% of sections supporting densities in excess of 0.36 birds per hectare. The highest counts by far were recorded at the Alt Estuary.

A total of 11 SPAs in the UK have been designated for their value to wintering Sanderlings (Stroud *et al.* 2001). Of these, three were not surveyed by the LTCs during the period under review, those being the estuaries of the Wash and Morecambe Bay and the non-estuarine shoreline at South Uist Machair and Lochs. Additional to the sites overlapping SPAs, site totals exceeding the 1% national threshold value were recorded at Strangford Lough.

DUNLIN
CALIDRIS ALPINA

The Dunlin is generally the most abundant wader on UK estuaries. Although small numbers occur at inland sites, over 99% occur on the coast, with about 95% of the total on estuaries (Rehfisch *et al.* 2003). Dunlin have a very wide breeding range in low arctic and boreal regions, with most wintering north of the equator. Three races occur in the UK. The westernmost component of the nominate race *alpina* breeds from northern Fennoscandia to Siberia and winters in western Europe, including the UK. The race *arctica* from north-east Greenland passes through the UK on its way to and from West African wintering grounds. Finally, *schinzii* is a breeding species in the UK as well as in Iceland, south-east Greenland and south Norway; most of this race winters in West Africa but some do so in Europe, including the UK (Wernham *et al.* 2002). Dunlin feed on a wide range of intertidal invertebrates, characteristically captured by a rapid series of shallow probes with the bill (Snow and Perrins 1998).

Dunlin were recorded at all of the 62 sites under review, with the species being noted on 68% of count sections and on 46% of visits. There was no significant difference between months in the proportion of visits on which the species was recorded. The proportion of Dunlin recorded as feeding at low tide was 98%, a typically high value as with most specialist intertidal waders. Examination of distributional patterns at the site level revealed little in the way of underlying principles; at some sites, the species was widespread, elsewhere it could be highly localised. It seems likely that the underlying patterns were not clearcut because the species is highly versatile and so can exploit food resources whenever and wherever they become available.

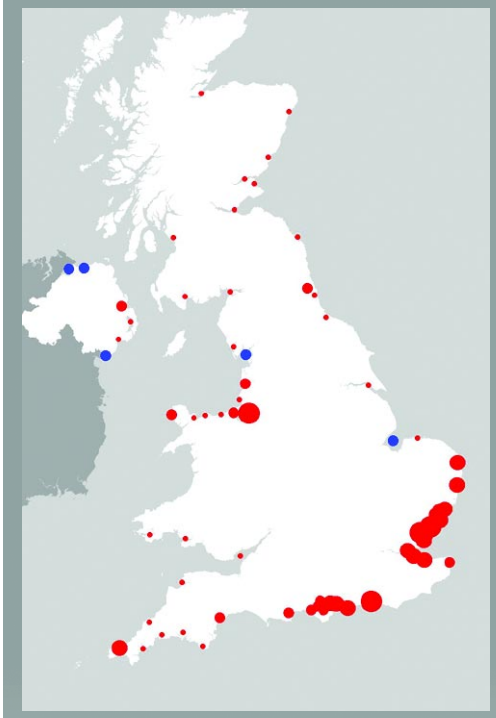

Figure 5.25: **Mean site densities of Dunlin**

Figure 5.25 reveals a preference for the south-east of England, with high densities of Dunlin found especially around the Greater Thames area and the Solent, although the Mersey Estuary was also prominent. Densities were mostly low in Scotland and in the south-west. At a sectional level, 5% of all sections surveyed supported densities in excess of 16.04 birds per hectare, with 1% of sections supporting densities in excess of 39.67 birds per hectare. Site totals in excess of 30,000 from the Mersey, Ribble and Dee Estuaries show that north-west England, whilst not supporting such high densities as the south-east, nonetheless holds very high numbers.

A total of 38 SPAs in the UK have been designated for their value to wintering Dunlin (Stroud *et al.* 2001). Of these, six were not surveyed by the LTCs during the period under review, all of which were estuaries: Alde–Ore Estuary, Cromarty Firth, Dornoch Firth and Loch Fleet, Lough Foyle, Morecambe Bay and the Wash. Additional to the sites overlapping SPAs, site totals exceeding the 1% national threshold value were recorded at Pagham Harbour, Portsmouth Harbour, Crouch–Roach Estuary, Dundrum Bay and Moray Firth.

BLACK-TAILED GODWIT

LIMOSA LIMOSA

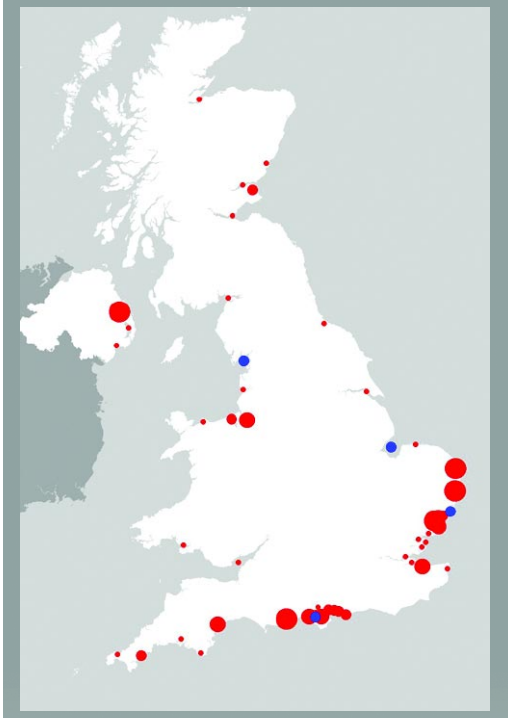

Figure 5.26: **Mean site densities of Black-tailed Godwit**

The Black-tailed Godwit is an increasingly numerous wintering wader in the UK, with an increase of over 200% since the 1970s, although the increase has been even more dramatic since the 1930s, when less than 100 birds wintered (Atkinson *et al.* 2000). The majority of wintering birds occur on estuaries, although some make use of wet grasslands, particularly later in the winter. Birds wintering in the UK belong to the Icelandic breeding subspecies *islandica* (Wernham *et al.* 2002). Black-tailed Godwits locate their invertebrate food by both sight and touch, most frequently by prolonged and vigorous probing and often with the head immersed in water (Snow and Perrins 1998).

Black-tailed Godwits were recorded at 46 of the 62 sites under review, with the species being noted on 25% of count sections and on 13% of visits. There was no appreciable difference between months in the proportion of visits on which the species was recorded. The proportion of Black-tailed Godwits recorded as feeding at low tide was 75%, a relatively low value for a wader, suggesting that significant numbers of this species feed at different states of the tide, or perhaps move to terrestrial habitats at night, although Zwarts and Wanink (1993) suggested that larger species of wader would need to feed for a lower proportion of the time than smaller ones. Examination of distributional patterns at the site level reveals a strong tendency for Black-tailed Godwits to occur mostly in the inner (muddier) parts of estuaries, with adjacent nontidal fields utilised at some sites.

Figure 5.26 shows the relative site densities at the review sites around the UK. Higher site densities occurred widely between Norfolk and Cornwall, with other high density sites outside this area more isolated at Belfast Lough and the Mersey Estuary. At a sectional level, 5% of all sections surveyed supported densities in excess of 0.52 birds per hectare, with 1% of sections supporting densities in excess of 2.61 birds per hectare. Most of the highest site totals were recorded at the Mersey, Dee and Stour Estuaries.

A total of 27 SPAs in the UK are designated for wintering Black-tailed Godwits, of which 21 overlap to some extent at least with the LTC sites within this review, the others being the Wash, Alde Complex, Morecambe Bay and three inland sites (Stroud *et al.* 2001). Additional to the sites overlapping SPAs, site totals exceeding the 1% national threshold value were recorded at Pagham Harbour, Strangford Lough, Severn Estuary, Deben Estuary, Portsmouth Harbour, Blyth Estuary (Suffolk) and Montrose Basin.

BAR-TAILED GODWIT

LIMOSA LAPPONICA

Bar-tailed Godwits breed in the high arctic from Fennoscandia eastwards across northern Siberia and winter in coastal regions of the Old World. The nominate race, occupying the western half of the breeding range, winters mostly in West Africa and in north-west Europe. In Britain, this is an entirely coastal species and about 94% of birds inhabit estuaries (Rehfisch *et al.* 2003). In the autumn, birds arrive both to moult and winter in the UK and also pass through en route to moult and winter in West Africa. In February and March, British wintering birds leave to feed on the Wadden Sea before migrating northwards. There is then a notable pulse of migration in May, especially along south-east coasts, of birds from the African wintering grounds that are also on the way to the Wadden Sea for refuelling (Wernham *et al.* 2002). Bar-tailed Godwits feed on intertidal molluscs, crustaceans and worms, often probing along or just below the tideline with head immersed (Snow and Perrins 1998).

Bar-tailed Godwits were recorded at 53 of the 62 sites under review, with the species being noted on 36% of count sections and on 17% of visits. Most of the sites from which the species was unrecorded were small estuaries. There was no appreciable difference between months in the proportion of visits on which the species was recorded, suggesting that if dispersal to the Wadden Sea begins in February, the bulk of this must be rather late in the month. The proportion of Bar-tailed Godwits recorded as feeding at low tide was 96%. On many of the sites where Bar-tailed Godwits occurred, numbers were too low for a meaningful examination of distribution. Elsewhere, birds at many sites displayed a preference for the outer parts of the site (Strangford Lough and Belfast Lough being the exceptions), in association with sandy substrates.

Figure 5.27 shows the widespread distribution of the species, with little geographical difference in site densities apparent, although the Liverpool Bay estuaries were prominent. At a sectional level, 5% of all sections surveyed supported densities in excess of 0.72 birds per hectare, with 1% of sections supporting densities in excess of 3.26 birds per hectare. The highest absolute counts made at low tide were recorded at the Ribble and Dee Estuaries.

A total of 23 SPAs in the UK have been designated for their value to wintering Bar-tailed Godwits (Stroud *et al.* 2001). Of these, seven were not surveyed by the LTCs during the period under review, including the non-estuarine East Sanday Coast and six estuarine sites: Cromarty Firth, Dornoch Firth and Loch Fleet, Lough Foyle, Morecambe Bay, the Wash and Gibraltar Point (the last two doubtless involving the same birds to some degree). At no additional sites did site totals exceed the 1% national threshold value.

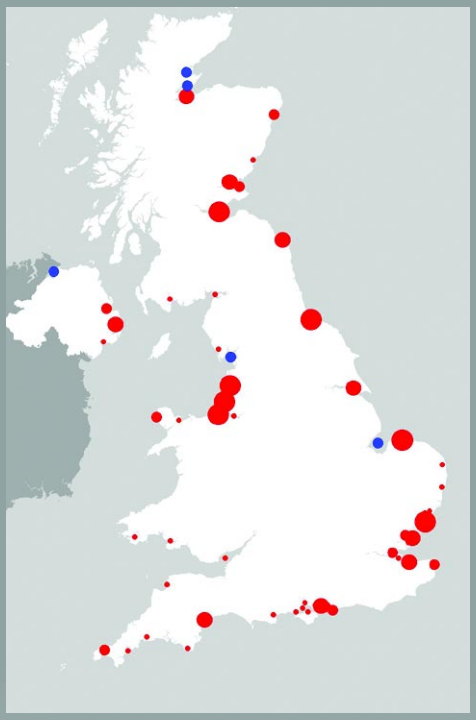

Figure 5.27: **Mean site densities of Bar-tailed Godwit**

CURLEW

NUMENIUS ARQUATA

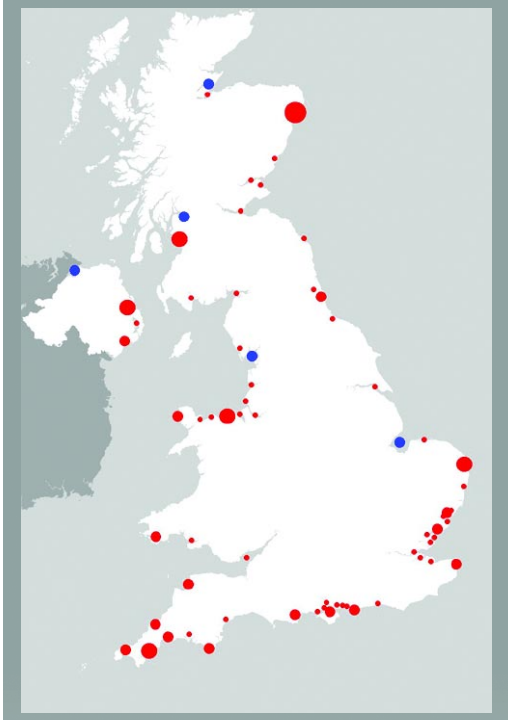

Figure 5.28: **Mean site densities of Curlew**

The Curlew is a familiar UK bird both in the breeding season and in the winter. In the winter, about 95% of birds occur along the coast, although the true numbers of birds wintering inland are not fully known. Both estuaries and non-estuarine coastlines are frequented, the proportion of the population using estuaries being estimated at about 52% (Rehfisch *et al.* 2003). British and Irish breeding birds tend to winter in western Britain and Ireland, although some of the more southerly breeders winter as far south as Portugal. On the east coast of Britain, however, all of the wintering birds appear to be from the continent, from Norway to Russia and down to central Europe. UK breeding birds depart to their breeding grounds earlier than do the continental ones (Wernham *et al.* 2002). Curlews are omnivorous but feed chiefly on intertidal invertebrates on estuaries, both taking food from or near the surface and probing deep into the sediments with their long bills (Snow and Perrins 1998).

Curlews were recorded at all of the 62 sites under review, with the species being noted on 89% of count sections and on 73% of visits. These proportions were the highest recorded for any species by the scheme (albeit only slightly higher than for Redshank) and confirm the ubiquity of Curlews on the UK's estuaries. There was no appreciable difference between months in the proportion of visits on which the species was recorded. The proportion of Curlews recorded as feeding at low tide was 83%, somewhat lower than for the majority of estuarine waders, perhaps due to the species sometimes feeding on terrestrial habitats such as wet fields, although Zwarts and Wanink (1993) suggested that larger species of wader would need to feed for a lower proportion of the time than smaller ones. An examination of the individual site maps shows that at almost all sites, Curlews were extremely evenly distributed across the intertidal habitat. Not only that, but at sites where adjacent fields or marshes had been counted at low tide along with the mudflats, the density of birds was similar on intertidal and nontidal habitats.

Figure 5.28 shows the widespread distribution of Curlews on UK estuaries, with little geographical difference in site densities apparent; the Ythan and Irvine–Garnock Estuaries supported the highest mean site densities. At a sectional level, 5% of all sections surveyed supported densities in excess of 1.57 birds per hectare, with 1% of sections supporting densities in excess of 3.56 birds per hectare. As would be expected for such an evenly distributed species, the highest absolute counts were recorded on the largest sites, notably the Solway Firth, Dee Estuary and Humber Estuary.

A total of 25 SPAs in the UK have been designated for their value to wintering Curlews (Stroud *et al.* 2001). Of these, five were not surveyed by the LTCs during the period under review, all of which were estuaries: Cromarty Firth, Dornoch Firth and Loch Fleet, Lough Foyle, Morecambe Bay and the Wash. Additional to the sites overlapping SPAs, site totals exceeding the 1% national threshold value were recorded at the North Norfolk Coast and Ythan Estuary.

REDSHANK
TRINGA TOTANUS

The Redshank is a widespread breeding species in the UK, both inland (more so in the north) and on the coast (Gibbons *et al.* 1993). In winter, 99% of the UK's Redshanks are found on the coast, with 71% of the total on estuaries (Rehfisch *et al.* 2003). Many of the birds breeding in the UK also winter, although most leave the northernmost parts of Britain in the winter. Our birds are joined by large numbers of immigrants from Iceland for the winter, with further birds from the continent mostly passing through to wintering grounds further south (Wernham *et al.* 2002). Redshanks feed on a variety of crustaceans, molluscs and polychaete worms, hunting mostly by day on estuaries as they are largely visual foragers (Snow and Perrins 1998).

Redshanks were recorded at all of the 62 sites under review, with the species being noted on 88% of count sections and on 73% of visits; these proportions ranked Redshank the second most widespread estuarine waterbird in the UK, only marginally behind Curlew. There was no appreciable difference between months in the proportion of visits on which the species was recorded. The proportion of Redshanks recorded as feeding at low tide was 96%. An examination of the distribution maps for each site re-emphasise that Redshanks were extremely widely distributed. At many sites, the distribution was rather even. At other sites, a preference was shown for the inner parts of the site, to a greater or lesser extent. However, at no sites did Redshanks exhibit a preference for the outer estuary. Creeks were often densely occupied (*e.g.* Fremington Pill at the Taw–Torridge Estuary) but fields and freshwater marshes supported relatively few Redshanks compared with Curlews.

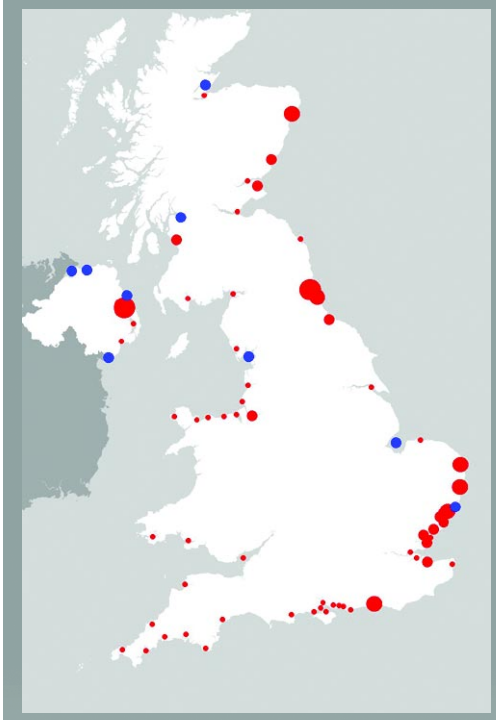

Figure 5.29: **Mean site densities of Redshank**

Figure 5.29 clearly reveals a series of higher site densities along the east coast than on the west, presumably due to the muddier nature of most east-coast estuaries. Belfast Lough was the most prominent site in the west. At a sectional level, 5% of all sections surveyed supported densities in excess of 3.22 birds per hectare, with 1% of sections supporting densities in excess of 9.18 birds per hectare. Despite the relatively low densities, many of the highest site totals were counted at west coast sites, notably the Mersey Estuary.

A total of 35 SPAs in the UK have been designated for their value to wintering Redshanks (Stroud *et al.* 2001). Of these, six were not surveyed by the LTCs during the period under review, all of which were estuaries: Alde–Ore Estuary, Cromarty Firth, Inner Clyde Estuary, Lough Foyle, Morecambe Bay and the Wash. Additional to the sites overlapping SPAs, site totals exceeding the 1% national threshold value were recorded at the Deben Estuary, Crouch–Roach Estuary, Dundrum Bay and Breydon Water.

TURNSTONE

ARENARIA INTERPRES

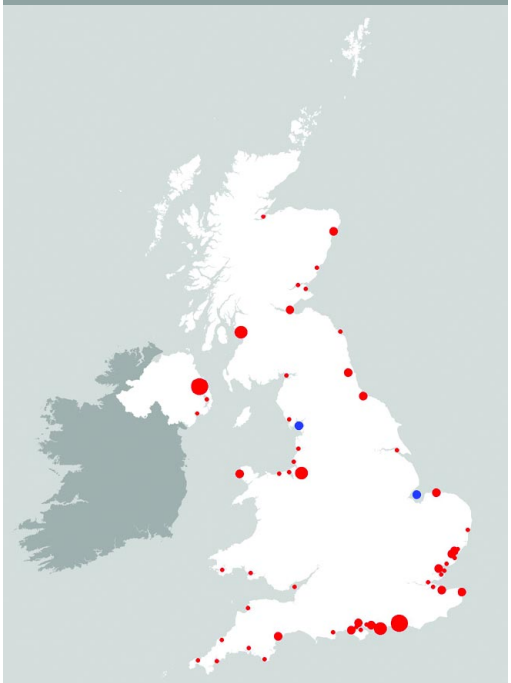

Figure 5.30: **Mean site densities of Turnstone**

The Turnstone is a familiar species on rocky coasts around the whole of the UK (Lack 1986). Virtually none are encountered inland and only 22% occur on estuaries where they tend to inhabit the rockier areas (Rehfisch *et al.* 2003). Turnstones have a Holarctic northerly breeding distribution but the wintering range is almost worldwide. Most of those wintering in the UK are birds which breed in Canada and Greenland. Fennoscandian birds pass through the UK, where some may winter, but most continue south to North-west and West Africa (Wernham *et al.* 2002). Turnstones eat mostly insects, molluscs and crustaceans found by overturning stones, although the species will scavenge most potential food items on a beach (Snow and Perrins 1998).

Turnstones were recorded at 56 of the 62 sites under review, with the species being noted on 37% of count sections and on 20% of visits. The six sites at which Turnstone was unrecorded were Wigtown Bay, Lavan Sands, Conwy Estuary, Breydon Water, Fowey Estuary and Wear Estuary. There was no appreciable difference between months in the proportion of visits on which the species was recorded. The proportion of Turnstones recorded as feeding at low tide was 99%. An examination of distribution maps for each site reveals that Turnstones were often widespread but frequently showed a preference for the outer estuary, especially where there were rocky substrates. At many sites, Turnstones were rather localised, often on well-defined rocky outcrops, pebbly beaches and man-made structures such as marinas or breakwaters. However, open flats were used on occasion.

Figure 5.30 shows the widespread distribution of the species, with little geographical difference in site densities apparent, although site densities were generally low in the south-west. At a sectional level, 5% of all sections surveyed supported densities in excess of 0.48 birds per hectare, with 1% of sections supporting densities in excess of 1.73 birds per hectare. By far the highest absolute counts were made at the mouth of the Mersey Estuary, where a peak of 1,727 was recorded.

A total of 13 SPAs in the UK have been designated for their value to wintering Turnstones (Stroud *et al.* 2001). Of these, six were not surveyed by the LTCs during the period under review, those being Morecambe Bay, the Wash and four non-estuarine coastal SPAs. Additional to the sites overlapping SPAs, site totals exceeding the 1% national threshold value were recorded at the Blackwater Estuary, Humber Estuary and North Norfolk Coast.

RED-THROATED DIVER *GAVIA STELLATA*

The Red-throated Diver is a widespread wintering species around the coasts of the UK, being generally the most numerous of the diver species (Lack 1986, Kershaw and Cranswick 2003). These birds breed across the Arctic from at least as far away as Greenland and Finland, and also include birds which nest in Scotland (Wernham *et al.* 2002). The Firth of Forth is the only SPA currently designated for wintering Red-throated Divers (Stroud *et al.* 2001).

Red-throated Divers were recorded at 22 of the sites under review, with the species being recorded on 79 visits. Most of the records were from the Moray Firth and the Firth of Tay. Over 70% of observations were of single birds, with the remainder mainly involving up to six at at time. Larger concentrations were noted on individual count sections at the Moray Firth (12) and at the Alt Estuary (19). Given that thousands winter offshore in UK waters, the LTCs clearly provide little information about this species. The proportion of Red-throated Divers recorded as feeding at low tide was 95%.

GREAT NORTHERN DIVER *GAVIA IMMER*

Although widespread around UK coasts in the winter, numbers of Great Northern Divers are much higher in the west and north than along the east coast (Lack 1986). The precise breeding range of those wintering in UK waters is unknown but is thought to include Iceland, Greenland and possibly Canada (Wernham *et al.* 2002). There are no SPAs currently designated for Great Northern Divers in the UK (Stroud *et al.* 2001).

Great Northern Divers were recorded at eight of the sites under review, with the species being recorded on 26 visits. Seven of the eight sites where the species was recorded (Moray Firth, Belfast Lough, Strangford Lough, Cleddau Estuary, Taw-Torridge Estuary, Southampton Water and Langstone Harbour) corresponded with the generally westerly national distribution, with just a single east coast record of two on the Blackwater Estuary; on no visits were more than two birds recorded. The proportion of Great Northern Divers recorded as feeding at low tide was 97%.

SLAVONIAN GREBE *PODICEPS AURITUS*

The Slavonian Grebe is a scarce wintering species around much of the coasts of Britain and Ireland (Lack 1986). The movements of the species are unclear, but it has been suggested that there are two populations involved. Birds along the east coast of Britain may be of the nominate race *auritus*, which breeds in Sweden, Finland and the Baltic States. However, birds wintering in north-west Scotland and Ireland are thought to be of the race *arcticus*, and probably originate largely from Iceland (Wernham *et al.* 2002). The Exe Estuary and the Firth of Forth are the only two SPAs designated for their value to wintering Slavonian Grebes (Stroud *et al.* 2001).

Slavonian Grebes were recorded at 15 of the sites under review, with the species being recorded on 64 visits. The principal sites appeared to be Pagham Harbour (with a peak of a synchronous count of 26 birds), Strangford Lough (up to 11 birds), Chichester Harbour (up to nine birds) and Exe Estuary (up to nine birds), no other site totals in excess of four birds being recorded. The proportion of Slavonian Grebes recorded as feeding at low tide was 97%.

SHAG *PHALACROCORAX ARISTOTELIS*

The Shag is a common resident around much of the inshore waters of Britain and Ireland, although scarce in the south-east (between Yorkshire and Dorset). Shags disperse from breeding colonies in the winter but do not tend to make long-distance movements and avoid long sea-crossings (Wernham *et al.* 2002). There are currently no UK SPAs designated for their value to wintering Shags (Stroud *et al.* 2001).

Shags were recorded at 16 of the sites under review, with the species being recorded on 161 visits. It is possible that the species may have been seen but left unrecorded by counters at other sites, given the lack of emphasis WeBS has given to this species in the past. The majority of records came from Belfast Lough, Strangford Lough and the Firth of Forth, all sites with strongly non-estuarine character in places. Many counts were in single figures but larger flocks were recorded at the main sites. The peak for the Firth of Forth in 1992–93 was 509, including a flock of 263 on one count section. Counts at Belfast Lough over five winters varied greatly, between two and 237,

the latter involving a single section count of 228. Strangford Lough's peak counts were more consistent, varying between 21 and 78 each winter. Other double-figure site totals were from the Firth of Tay, Moray Firth, Dundrum Bay, Conwy Estuary and Kingsbridge Estuary, but the species was scarce in the south-east. The proportion of Shags recorded as feeding at low tide was 60%.

BEWICK'S SWAN *CYGNUS COLUMBIANUS*

Bewick's Swan is a high-arctic breeder in the Russian tundra, the westernmost population of which winters primarily in Britain and the Netherlands (Wernham *et al.* 2002). In the UK, the majority of Bewick's Swans occur on just a handful of sites, with over 50% wintering on the Ouse Washes and Nene Washes (*Wildfowl & Wader Counts*). A number of the other key sites are parts of estuarine complexes, but the swans make use of adjacent nontidal pasture to feed. A total of 15 SPAs (mostly non-estuarine) have been designated for their value to Bewick's Swans, of which three (Breydon Water, Ribble & Alt Estuaries, Severn Estuary) overlap with sites covered by the LTCs during the period under review (Stroud *et al.* 2001). The only other estuarine SPA not covered by the LTCs was Lough Foyle.

Bewick's Swans were recorded at nine of the sites under review, with the species being recorded on 16 visits. These sites were quite widespread: five in the south-east from Poole Harbour around to the Humber Estuary, and four in the north-west around the Irish Sea. The largest counts were from the Ribble, Dee and Medway Estuaries, with counts at no other sites exceeding ten birds. Given that this species tends to frequent habitats which were not specifically targeted by the scheme, the data gathered by the LTCs for this species are of limited utility. The proportion of Bewick's Swans recorded as feeding at low tide was 96%.

WHOOPER SWAN *CYGNUS CYGNUS*

Within Britain and Ireland, the wintering range of the Whooper Swan has a more northerly and westerly pattern than that of Bewick's Swan, with far more birds frequenting Ireland. This is because the majority of our wintering Whooper Swans breed in Iceland, although it has become apparent in recent years that some birds from the population breeding in Fennoscandia and north-west Russia also arrive in the winter (Wernham *et al.* 2002). Notably, however, the most important single site in the UK is also the most south-easterly regular site, the Ouse Washes (*Wildfowl & Wader Counts*). A total of 19 SPAs have been designated for their value to wintering Whooper Swans, of which three (Lindisfarne, Ribble & Alt Estuaries and Upper Solway Flats & Marshes) overlap with sites covered by the LTCs during the period under review (Stroud *et al.* 2001). Three other estuarine SPAs important for Whooper Swans but not covered by the LTCs were Cromarty Firth, Lough Foyle and the Wash.

Whooper Swans were recorded at ten of the sites under review, with the species being recorded on 55 visits. The sites were all in Scotland, Northern Ireland and northern England with the exception of the Burry Inlet. The only counts in excess of 50 birds were made at Strangford Lough and the Firth of Tay. As with Bewick's Swan, the species tends to frequent nontidal habitat adjacent to the estuaries themselves and so the counts do not necessarily fully represent the birds present. The proportion of Whooper Swans recorded as feeding at low tide was 73%.

PINK-FOOTED GOOSE *ANSER BRACHYRHYNCHUS*

The Pink-footed Goose is the most numerous wintering goose in the UK, but is highly restricted in its world range. Most of the population breeds in Iceland and east Greenland and winters in Britain south to Norfolk and Lancashire, although very few are recorded in Ireland (*Wildfowl & Wader Counts*, Colhoun 2001). A total of 24 SPAs have been designated for their value to wintering Pink-footed Geese, of which nine overlap with sites covered by the LTCs during the period under review (Stroud *et al.* 2001). Two estuarine SPAs within the network for Pink-footed Goose were not covered by the LTCs: Morecambe Bay and the Wash.

Pink-footed Geese were recorded at 17 of the sites under review, with the species being recorded on 111 visits. The sites at which the species was recorded by the LTCs fit closely to the known winter range of the species, the most extralimital records being single-figure counts from the Taw–Torridge Estuary, Stour Estuary and Strangford Lough. There were some very large counts elsewhere, the highest being 15,150 at Montrose Basin in November 1997, but four-figure counts were also recorded at Firth of Forth, North Norfolk

Coast, Solway Firth and Wigtown Bay. As a highly gregarious species, this 'all or nothing' pattern is quite typical. Even within sites with high numbers, birds were mostly on a single count section, such as at Scolt Head on the North Norfolk Coast and near Grangemouth on the Firth of Forth. The proportion of Pink-footed Geese recorded as feeding at low tide was 8%; the species feeds almost entirely on inland fields and uses estuaries, as well as inland waterbodies, principally as safe nocturnal roosts. Therefore, the numbers recorded during LTCs do not describe the use of the site by the bird adequately.

GREYLAG GOOSE *ANSER ANSER*

The indigenous population of the Greylag Goose is now confined to north-west Scotland, the latest winter estimate being 9,620 birds. Birds from this population were reintroduced to other parts of the UK, so successfully that there are now thought to be a further 28,500 birds in Britain as a result, with a small additional number in Ireland. Finally, the UK (Scotland in particular) is important as the wintering ground for Greylag Geese which nest in Iceland, of which the latest estimates are 81,900 birds in Britain and about 5,000 in Ireland (Kershaw & Cranswick 2003, Colhoun 2001). Small numbers of geese which breed in eastern Europe and winter mostly in the Netherlands also make it into the UK, although these are likely to go mostly undetected amongst naturalised re-established flocks. A total of 22 SPAs have been designated for their value to wintering Icelandic Greylag Geese, of which six overlap with sites covered by the LTCs during the period under review (Stroud *et al.* 2001). Three estuarine SPAs within the network for Greylag Goose were not covered by the LTCs: Cromarty Firth, Dornoch Firth & Loch Fleet and Lough Foyle.

Greylag Geese were recorded at 24 of the sites under review, with the species being recorded on 208 (2%) visits. Sites at which the species was recorded by the scheme were widely distributed around the country. Most birds on Scottish estuaries, plus those at Lindisfarne, were Icelandic immigrants. Most of the sites further south were assumed to hold birds of the naturalised re-established population. Within sites, naturalised re-established birds were often found on freshwater wetland habitat adjacent to estuaries, whereas the Icelandic birds tended to be roosting on the intertidal. The proportion of Greylag Geese recorded as feeding at low tide was 35%, with most birds feeding away from estuaries.

CANADA GOOSE *BRANTA CANADENSIS*

Although occasional vagrant wild Canada Geese cross the Atlantic (as evidenced by ringing recoveries), almost all birds in Britain and Ireland are part of a naturalised introduced population. Most Canada Geese in the New World, as well as naturalised introduced populations in Scandinavia, migrate south in the winter. However, British and Irish birds are generally sedentary, although a moult migration of part of the population to the Beauly Firth is well-documented. Birds breeding at more upland sites will also move to the lowlands in the winter (Wernham *et al.* 2002). At all times of year, freshwater habitats are preferred. As a naturalised introduced species, there are no SPAs designated for Canada Geese (Stroud *et al.* 2001).

Canada Geese were recorded at 31 of the sites under review, with the species being recorded on 257 (2%) visits. The species was recorded widely around the UK by the scheme, but numbers were low in Scotland and at most Welsh sites. At most sites, Canada Geese were scarce on intertidal habitats and showed a preference for adjacent freshwater habitats. Nine sites recorded counts into three figures, the largest concentrations being at Burton Marsh at the Dee Estuary, Ince Banks at the Mersey Estuary and Loompit Lake at the Orwell Estuary. The proportion of Canada Geese recorded as feeding at low tide was 67%.

GADWALL *ANAS STREPERA*

The Gadwall is one of the most rapidly increasing species of wintering waterbird in the UK, the population having expanded over 100-fold since the mid-1960s (Atkinson *et al.* 2000). The increase is thought to be due to the great enlargement of available habitat provided by the creation of artificial wetlands such as flooded gravel pit complexes. Gadwall have traditionally been most common in south-east England but larger flocks are now becoming more widespread. However, the great majority are found on inland waters. The birds wintering here are derived from a mixture of three sources. An increasing population breeds in the UK, of which some stay the winter and some disperse south to France and beyond, with some of the Scottish birds wintering in Ireland. Some of the other birds wintering in Ireland are from the Icelandic breeding population. Finally, there is also a winter arrival from eastern Europe

(Wernham *et al.* 2002). A total of 18 SPAs in the UK have been designated for their value to wintering Gadwall, 12 of which are inland (Stroud *et al.* 2001). However, on the six estuarine SPAs (all of which overlap with sites covered for the LTCs during the period under review), it is likely that most Gadwall were present on non-estuarine habitat within those SPAs.

Gadwall were recorded at 26 of the sites under review, with the species being recorded on 168 (1%) visits. The species was recorded widely around the UK by the LTCs although, as would be expected, numbers were generally lower in the north. At most sites, Gadwall occurred on marshes and pools adjacent to the main estuary, although some were found in intertidal habitats as well. Double-figure counts were quite widely noted, but the highest site total was of 147 at the Orwell Estuary in November 1996. The proportion of Gadwall recorded as feeding at low tide was 68%.

SHOVELER
ANAS CLYPEATA

The Shoveler is the least common of the principal dabbling duck species wintering in the UK. Shovelers favour areas of shallow freshwater and as these are the most likely to dry out or freeze over, the species has developed a strong dispersive and migratory tendency. Over 1,000 pairs breed in Britain and Ireland but most of these move south to winter from France to North Africa. However, birds from further east arrive in the autumn, some staying to winter here and some passing through, leading to an autumn peak in numbers (Wernham *et al.* 2002). A total of 26 SPAs in the UK have been designated for their value to wintering Shovelers (Stroud *et al.* 2001). Of the 12 SPAs which have an estuarine component, only the Alde–Ore Estuary was not surveyed by the scheme during the period under review.

Shovelers were recorded at 41 of the sites under review, with the species being recorded on 258 (2%) visits. The species was recorded widely around the UK by the LTCs. At some sites, Shovelers occurred on freshwater habitats adjacent to the main estuary, such as Blacktoft Sands at the Humber Estuary, Trimley Marshes on the Orwell Estuary and WWT Penclacwydd at the Burry Inlet. On other sites, however, substantial numbers were present on intertidal habitats, such as at the Medway Estuary (at Bedlams Bottom and Riverside Country Park) and along the Peterstone shoreline of the Severn Estuary. Double-figure counts were widely noted, but three-figure counts were only recorded in the south, at the Medway Estuary, Burry Inlet, North-west Solent and Severn Estuary. The proportion of Shovelers recorded as feeding at low tide was 73%.

POCHARD
AYTHYA FERINA

The Pochard is a common and widespread wintering species across much of the UK, although a relatively scarce breeding bird. Most are found on inland sites, with coastal sites occupied during harsh weather or where feeding opportunities are particularly suitable. Substantial moulting flocks can occur in the late summer, with further arrivals for the winter, mostly originating from the Baltic States, central Europe and Russia; the breeding range of this species is somewhat more southerly than those of many of the other duck species wintering in the UK (Wernham *et al.* 2002). A total of 12 SPAs in the UK have been designated for their value to wintering Pochard, nine of which are inland (Stroud *et al.* 2001). The three estuarine SPAs, the Severn Estuary, Humber Flats, Marshes & Coast and Poole Harbour, were all covered by the LTCs during the period under review.

Pochard were recorded at 25 of the sites under review, with the species being recorded on 172 (1%) visits. The species was recorded widely around the UK by the LTCs, although numbers were generally low in the north. At most sites, Pochard were scarce, but larger numbers occurred in two situations. Firstly, at sites such as the Orwell Estuary (where 772 were counted in February 1996) and the Burry Inlet, most birds were present on nontidal habitat adjacent to the estuary. At a few other sites, however, birds congregated at grain or sewage outfalls on the estuary itself, notably at New Holland on the Humber Estuary and at Peterstone on the Severn Estuary. Large flocks also historically occurred around outfalls on the Firth of Forth before these were cleaned up. The proportion of Pochard recorded as feeding at low tide was 60%.

TUFTED DUCK
AYTHYA FULIGULA

Tufted Ducks are common and widespread throughout the year and across the UK, the breeding population being supplemented by continental immigrants in the winter. The

majority occur inland but some make use of coastal sites, including estuaries, at times. Large flocks of the species are uncommon, except at Loughs Neagh and Beg in Northern Ireland. Most British breeders are resident, although many Scottish birds appear to move south-west to Ireland for the winter. Winter immigrants originate from Iceland (mostly wintering in Ireland) and from Fennoscandia and European Russia (Wernham *et al.* 2002). A total of seven SPAs in the UK have been designated for their value to wintering Tufted Ducks, six of which are inland (Stroud *et al.* 2001). The only estuarine SPA, the Severn Estuary, was partly surveyed during the period under review.

Tufted Ducks were recorded at 28 of the sites under review, with the species being recorded on 208 (2%) visits. Sites from which the species was recorded were widely distributed around the UK. At a number of sites, Tufted Ducks were mostly confined to adjacent freshwater habitat (such as at the Burry Inlet, Chichester Harbour and Orwell Estuary). Only on a few sites were larger concentrations of several hundred birds found on the estuary itself, along the Peterstone shore of the Severn Estuary, at New Holland on the Humber Estuary, at Barking on the inner Thames Estuary, at Inverness on the Moray Firth and at Dundee on the Firth of Tay; most of these concentrations were due to site-specific food inputs such as sewage or waste grain outfalls. The proportion of Tufted Ducks recorded as feeding at low tide was 73%.

SCAUP *AYTHYA MARILA*

Scaup are the most maritime of the genus *Aythya*, using both estuaries and the open coast, with only small numbers occurring inland apart from the very notable exception of Loughs Neagh and Beg in Northern Ireland, which supports the largest flock in the UK (*Wildfowl & Wader Counts*). Ringing recoveries suggest that many of the Scaup wintering in the UK originate from Iceland, although birds from the Baltic and further east also occur (Wernham *et al.* 2002). A total of six SPAs in the UK have been designated for their value to wintering Scaup, four of which overlap with estuaries covered by the LTCs during the period under review; the other two are the Cromarty Firth and the inland site Loughs Neagh & Beg (Stroud *et al.* 2001).

Scaup were recorded at 16 of the sites under review, with the species being recorded on 73 visits. The sites at which Scaup were recorded were widely distributed around the coast. By far the largest counts were from the Moray Firth and Belfast Lough; at only four sites did peak counts not reach double figures, emphasising how this species usually occurs in flocks. Scaup tended to be very concentrated on a site, flocking at suitable feeding sites, with no particular preference for the inner or outer estuary. Peak numbers were often short-lived. The proportion of Scaup recorded as feeding at low tide was 88%.

LONG-TAILED DUCK *CLANGULA HYEMALIS*

Long-tailed Ducks are not uncommon wintering birds in UK waters, but the vast majority are highly localised in the Moray Firth, the Firth of Forth, St Andrew's Bay and the northern isles. Smaller numbers are regular down the east coast but Long-tailed Ducks are scarce inland (Lack 1986). Together, these form only a tiny proportion of the estimated five million wintering in Europe, mostly in the Baltic Sea. The species frequently feeds far offshore in the Moray Firth and thus the birds are most effectively surveyed from the air. There is a lack of ring-recovery data for this species but our birds are thought to originate from Fennoscandia and north-west Russia (Wernham *et al.* 2002). Only three SPAs in the UK have been designated for their value to wintering Long-tailed Ducks: Firth of Forth, Firth of Tay & Eden Estuary and Moray & Nairn Coast, all of which were covered by the LTCs during the period under review (Stroud *et al.* 2001).

Long-tailed Ducks were recorded at eight of the sites under review, with the species being recorded on 103 visits. Four of these sites were in the south and involved up to three birds each. However, larger numbers were recorded at the four main sites further north. The Moray Firth held the highest numbers, although these were well short of the numbers thought to be actually present further offshore here. Up to 109 were counted in the Firth of Forth but the surveying of offshore species during these counts in 1992–93 was patchy and further surveys would probably yield far more. Up to 15 were recorded off Broughty Ferry at the Firth of Tay but the main flock in this area, in St Andrew's Bay off the Eden Estuary, was not covered by the counts. In Northern Ireland, up to 20 were recorded irregularly in Belfast Lough. The proportion of Long-tailed Ducks recorded as feeding at low tide was 94%.

COMMON SCOTER *MELANITTA NIGRA*

Common Scoters are one of the more widespread and numerous sea-duck wintering around UK coasts and birds can be seen at almost any time of year, although only very small numbers breed. Although any coastal habitat can be occupied, the largest numbers occur in a few major concentrations in traditional areas. The monitoring of Common Scoters has been improved enormously by the use of aerial survey techniques in some of these areas. Details of movements are hampered by a lack of ringing information but recoveries have been made of birds ringed in Iceland and the Gulf of Finland (Wernham *et al.* 2002). A total of six SPAs in the UK have been designated for their value to wintering Common Scoters, all of which were covered by the LTCs during the period under review (Stroud *et al.* 2001).

Common Scoters were recorded at 17 of the sites under review, with the species being recorded on 46 visits. Common Scoters occurred in the inner parts of estuaries only in low numbers and most of the larger flocks were offshore along parts of sites more non-estuarine in character. The sites were widely distributed around the coast but higher numbers were found in the north, with large flocks noted off the Alt Estuary and off Tentsmuir Point at the mouth of the Firth of Tay; the largest flock was at the Moray Firth, concentrated off Nairn and Culbin Bars. The proportion of Common Scoters recorded as feeding at low tide was 71%.

VELVET SCOTER *MELANITTA FUSCA*

Velvet Scoter is a localised wintering species in Britain, with sightings possible around most of the coast. However, the vast majority of birds are present in the Moray Firth complex, St Andrew's Bay, the Firth of Forth and around Orkney (Lack 1986). Velvet Scoters are usually found with Common Scoters and usually in much smaller numbers, although they can be the majority on occasion. The origin of these birds is thought to be Fennoscandia and probably Russia (Wernham et al. 2002). Four UK SPAs are designated for their value to wintering Velvet Scoters: Firth of Forth, Firth of Tay & Eden Estuary, Moray & Nairn Coast and North Norfolk Coast (Stroud *et al.* 2001). The relative or complete lack of records from these sites at low tide is due solely to a general lack of recording effort being directed at sea-duck at these sites, which are difficult to survey at any time but particularly so at low tide when birds may be further offshore and feeding more actively.

Velvet Scoters were recorded at just three of the sites under review, with the species being recorded on nine visits. Most of the records were from the Moray Firth, where site totals of up to 140 per month were recorded off the Nairn and Culbin Bars. Elsewhere, two birds were at the Taw–Torridge Estuary in January 1995 and two were in the Firth of Tay in January 1998. The proportion of Velvet Scoters recorded as feeding at low tide was 94%.

GOOSANDER *MERGUS MERGANSER*

In the UK, Goosanders are mostly found inland, both in and out of the breeding season (Lack 1986, Gibbons *et al.* 1993). The traditional exception has been the Moray Firth, where counts of 1,500 have been recorded (although numbers have declined drastically in recent winters) (*Wildfowl & Wader Counts*). Following the breeding season, the majority of male Goosanders undertake a moult migration to the northernmost fjords of Norway whilst females remain to moult in Britain. Males begin to return from Norway in November. Some of the birds wintering south to the Midlands are known to be British breeders. However, few in the far south-east appear to be so and most of these appear to be from the continent, largely from northern Fennoscandia and western Russia (Wernham *et al.* 2002). Only two SPAs in the UK have been designated for their value to wintering Goosanders; the Firth of Tay & Eden Estuary and the Inner Moray Firth, both of which overlap with sites covered by the LTCs during the period under review (Stroud *et al.* 2001).

Goosanders were recorded at 22 of the sites under review, with the species being recorded on 56 visits. Records were geographically very widespread, from the Moray Firth south to the Kingsbridge Estuary. Most sectional counts were of single figures, with the only exceptions from the Moray Firth (mostly within the Beauly Firth at this site) and the Irvine–Garnock Estuary. The proportion of Goosander recorded as feeding at low tide was 88%.

MOORHEN *GALLINULA CHLOROPUS*

The Moorhen is one of the most numerous and widespread waterbird species in the UK, being

present in every inland wetland habitat down to small ditches and garden ponds, although intertidal habitats are rarely used (Lack 1986). Most British and Irish breeders are mostly sedentary but interchange occurs at least with birds from Denmark, the Netherlands and Germany (Wernham *et al.* 2002). No UK SPAs are designated for Moorhen (Stroud *et al.* 2001).

Moorhens were recorded at 30 of the sites under review, with the species being recorded on 337 (3%) visits. The sites from which the species was recorded were distributed around the whole coastline. The within-site distribution maps for Moorhen reveal a preference for narrower, more riverine parts of inner estuaries (such as along the river Caen at the Taw–Torridge Estuary, the river Itchen at Southampton Water and by Woodbridge at the head of the Deben Estuary), as well as on freshwater marshes and fields. The only three-figure concentration was at WWT Penclacwydd on the Burry Inlet. The proportion of Moorhens recorded as feeding at low tide was 95%.

COOT
FULICA ATRA

Coots are widespread and abundant waterbirds which favour standing freshwater such as natural lakes, gravel pits and reservoirs, with rivers also occupied (Lack 1986). Intertidal habitats, however, tend not to be used. The species breeds commonly across the UK, with these birds largely sedentary while their numbers are augmented by an influx of birds from north-west Europe in the winter. Movements are not fully understood, however, since the species migrates entirely by night and is relatively difficult to catch and ring (Wernham *et al.* 2002). There are six SPAs in the UK which have been designated for wintering Coot: five are inland sites and the other is Strangford Lough (Stroud *et al.* 2001).

Coots were recorded at 23 of the sites under review, with the species being recorded on 249 (2%) visits. The sites at which the species was recorded showed a southern bias. Examination of the distribution maps for Coot at individual sites shows that few occur on intertidal flats but more are found on inner, more riverine parts of the estuary (such as at Ipswich on the Orwell Estuary) as well as adjacent freshwater pools. The only site counts of Coot in excess of 100 birds were recorded at the Orwell Estuary, the Swale Estuary and the Burry Inlet. The proportion of Coots recorded as feeding at low tide was 94%.

PURPLE SANDPIPER
CALIDRIS MARITIMA

The Purple Sandpiper is a characteristic species of rocky shorelines around much of the UK, although local and generally scarce in the south (Lack 1986). Only about 3% of the total occurs on estuaries (Rehfisch *et al.* 2003). Purple Sandpipers breed from Canada to Russia and winter further north than other waders, extending south to Spain and Maryland on either side of the Atlantic respectively. Some populations, including those in Iceland and western Greenland, are resident. About 75% of British wintering birds, found around most of the north and west, are thought to come from Canada with most of the rest, from Aberdeenshire to Yorkshire, breeding in Norway. Some of the birds on the south coast may be from Russia (Wernham *et al.* 2002). Only three SPAs in the UK have been designated for their value to wintering Purple Sandpipers (Stroud *et al.* 2001). All of these are stretches of non-estuarine coast which do not overlap with the sites covered by the LTCs, apart from a small amount of overlap of the Northumbria Coast SPA at the mouth of the Tyne Estuary.

Purple Sandpipers were recorded at 14 of the sites under review, with the species being recorded on 92 visits. They occurred sparsely and locally within estuaries, tending to be found either on discrete rocky outcrops (such as Hilbre Island on the Dee Estuary) or on the outer parts of sites which grade into rocky non-estuarine coast (such as at the Firth of Forth and Belfast Lough). Counts at most sites were in single figures, the highest site count being at the Firth of Forth. The proportion of Purple Sandpipers recorded as feeding at low tide was 98%, as would be expected given that the richest pickings on the rocky shores inhabited by this species are at the lowest end of the tidal range.

RUFF
PHILOMACHUS PUGNAX

The Ruff is a scarce wintering species in the UK and very small numbers also breed. However, larger numbers pass through, especially in the autumn. Although many of the sites recording the highest numbers of Ruff are, at first glance, coastal, closer investigation reveals that the intertidal habitats are used only infrequently and Ruff prefer marshes and flooded fields, sometimes even being found within winter flocks of Lapwing and Golden Plover in areas of extensive farmland (Lack 1986). Wintering birds were unknown in the

UK before 1934. Ruff breed across the Palaearctic from the Atlantic to Pacific, both in northern regions and also in more temperate zones from Britain to Kazakhstan. The majority of birds winter in sub-Saharan Africa (Wernham *et al.* 2002). In the UK, a total of eight SPAs have been designated for their value to wintering Ruff, four on the coast (all of which overlap with sites covered by the scheme during the period under review) and four inland, the latter all involving extensive floodplains (Stroud *et al.* 2001).

Ruff were recorded at 17 of the sites under review, with the species being recorded on 37 visits. Sites were well distributed geographically, although the Firth of Forth was the only Scottish site to record the species. The maps for each site reveal little in the way of underlying distributional patterns since the species was generally scarce or highly localised. Key areas include Blacktoft Sands on the Humber Estuary, Blakeney and Brancaster Harbours on the North Norfolk Coast and the creeks near Old Hall Marshes on the Blackwater Estuary. The proportion of Ruff recorded as feeding at low tide was 63%.

SNIPE
GALLINAGO GALLINAGO

Snipe are widespread in the UK throughout the year, although breeding numbers have declined in recent years, especially in lowland areas. Snipe can be found in almost any wetland habitat, although marshes and flooded fields are the most favoured (Lack 1986). On estuaries, although intertidal flats are seldom occupied, saltmarshes can support large numbers. Most UK breeders are fairly sedentary, but many more arrive in the autumn, especially from Iceland and Fennoscandia (Wernham *et al.* 2002). The only UK SPA designated for wintering Snipe is the inland Somerset Levels and Moors (Stroud *et al.* 2001).

Snipe were recorded at 50 of the sites under review, with the species being recorded on 462 (4%) visits. Most of the sites from which Snipe were unrecorded were those where counts were restricted to intertidal habitats, with the species doubtless present in the general area around all sites. At most sites during the LTCs, small numbers of Snipe were found by chance by flushing birds from the edges of saltmarshes or from nontidal habitats. An examination of the distribution maps for the species suggests that narrower channels were often occupied, but the highest numbers were found at adjacent freshwater habitats, especially at reserves like Blacktoft Sands on the Humber Estuary and WWT Penclacwydd at the Burry Inlet. The highest saltmarsh counts were made when particular effort was made to survey the species, such as along the North Norfolk Coast, where intensive surveys suggested that in excess of 600 Snipe were present. Most other sites recorded peak counts of less than 100 birds, with the exception of the Dee Estuary, Pegwell Bay and the Swale Estuary. Clearly, the numbers counted on a site by the LTCs should not always be treated as a true representation of the numbers actually present. The proportion of Snipe recorded as feeding at low tide was 85%.

WHIMBREL
NUMENIUS PHAEOPUS

Whimbrel are principally passage migrants through most of the UK, with a notable difference between a west coast bias in the spring and an east coast bias in the autumn. The nominate race of the species breeds in northern Scotland, mostly on Shetland, and more commonly further north from Greenland to central Siberia. Very small numbers are recorded each winter in Britain and Ireland, mostly along the south coasts of each, although the main wintering range of the species is sub-Saharan Africa (Wernham *et al.* 2002). Although a total of 11 SPAs in the UK are designated for their value to non-breeding Whimbrels, this is a reflection of their importance during passage periods and not mid-winter (Stroud *et al.* 2001).

Whimbrels were recorded at 13 of the sites under review, with the species being recorded on 32 visits. The majority of records were from the south-west, between Pagham Harbour and the Camel Estuary. Further north, the species was recorded at the Firth of Forth, Strangford Lough, Mersey Estuary and North Norfolk Coast. Most records were of single birds. The proportion of Whimbrels recorded as feeding at low tide was 77%.

SPOTTED REDSHANK
TRINGA ERYTHROPUS

The Spotted Redshank occurs in the UK as a scarce winter visitor and a slightly more numerous passage migrant, more so in the autumn. The species breeds from Fennoscandia eastwards across Siberia, with the wintering range extending from West Africa to China (Wernham *et al.* 2002).

In the UK in the winter, most birds are found on estuaries, although the total number present represents a minute proportion of the flyway population. No SPAs in the UK are designated for Spotted Redshank (Stroud *et al.* 2001).

Spotted Redshanks were recorded at 30 of the sites under review, with the species being recorded on 84 visits. The species was recorded widely around the UK by the LTCs, although as would be expected, numbers were generally lower in the north. Examination of the distribution maps for each site reveals little in the way of habitat preferences, given the small number of birds present at most sites. Where larger numbers were present, preference was shown for areas of saltmarsh or for narrow creeks, notably along the upper reaches of the Torridge and along the Tresillian River at the Fal Complex. The highest counts were recorded at Pagham Harbour, Taw–Torridge Estuary and North Norfolk Coast, but at most sites only single-figure counts were noted. The proportion of Spotted Redshanks recorded as feeding at low tide was 99%, similarly high to that for most other specialist intertidal waders.

GREENSHANK *TRINGA NEBULARIA*

Greenshanks breed widely across the taiga and forest zones of the Palaearctic, from Scotland to Kamchatka. Most birds winter in sub-Saharan Africa, southern Asia and Australasia, but smaller numbers over-winter in north-east Europe. Birds occur widely in the UK on passage, including inland, but most wintering birds are found on the coast, both at estuaries and along non-estuarine shores. The wintering population is concentrated in the south-west, with Ireland apparently supporting higher numbers than Britain. The origin of these birds is not certain but a large proportion of the Scottish breeders are thought to winter in Britain and Ireland, based on timing of departures from wintering grounds and arrival in late March on breeding grounds. Spring passage birds en route to breeding grounds further north-east in Europe occur in April and May (Wernham *et al.* 2002). There are no UK SPAs which have been designated for wintering Greenshanks (Stroud *et al.* 2001).

Greenshanks were recorded at 34 of the sites under review, with the species being recorded on 565 (5%) visits. Sites at which the species was recorded were widely distributed but showed a bias to the west. At most sites, too few birds were present to make comments about distributional patterns and preferences within sites, apart from a liking for narrow creeks (which may, in part, be simply due to there being many such creeks in south-west estuaries). Only single-figure counts were recorded at most sites, with the highest counts in the west. Site totals of 20 or more birds were recorded at Strangford Lough, Inland Sea, Kingsbridge Estuary and Taw–Torridge Estuary. The proportion of Greenshanks recorded as feeding at low tide was 95%.

COMMON SANDPIPER *ACTITIS HYPOLEUCOS*

The Common Sandpiper is a common breeding species in northern and western Britain and Ireland, mostly frequenting streams and lake-shores in upland areas (Gibbons *et al.* 1993). Birds occur widely on passage elsewhere. Small numbers remain in the winter, with a south-western bias to these records, although most UK breeders are thought to winter in West Africa (Lack 1986, Wernham *et al.* 2002). There are no UK SPAs which have been designated for Common Sandpipers (Stroud *et al.* 2001).

Common Sandpipers were recorded at ten of the sites under review, with the species being recorded on 36 visits. Most of these sites were in the south, from the Crouch–Roach Estuary around to the Severn Estuary. Further north, birds were recorded at Strangford Lough and the Ythan Estuary. Most records involved only one or two birds, although ten were noted at Strangford Lough in February 1994 and up to six were recorded at the Tamar Complex each month during the 1997–98 winter. The proportion of Common Sandpipers recorded as feeding at low tide was 88%.

BLACK-HEADED GULL *LARUS RIDIBUNDUS*

The Black-headed Gull is one of the most abundant and familiar wintering waterbirds in the UK, frequenting almost all of the country except for the most upland areas (Lack 1986). A wide variety of habitats are used, including farmland, but on the coast estuaries often support high concentrations of birds. Most gulls in the UK in winter congregate at discrete roosting sites overnight, often on freshwater although some large roosts also occur at estuaries. At the beginning of the 20th century, the species was virtually unknown inland but its spread into terrestrial habitats has allowed a huge increase

in the population (Burton *et al.* 2002c, Bowes *et al.* 1984). The wintering population of Black-headed Gulls is derived partly from British and Irish breeders and partly from immigrants, especially from Fennoscandia, the Baltic region and the Netherlands but also from Iceland, Russia and central Europe (Wernham *et al.* 2002). No SPAs in the UK have been designated for their value to wintering Black-headed Gulls (Stroud *et al.* 2001).

Black-headed Gulls were recorded at 54 of the sites under review, with the species being recorded on 38% of visits. However, as recording of gulls was optional for counters and as the remaining eight sites had no gull counts submitted, it is unlikely that the species was entirely absent from any site. Given the optional nature of gull recording for the scheme, it is not possible to discuss in detail the within-site distribution of Black-headed Gulls, although examination of the maps perhaps suggests a preference for upper-estuary count sections such as narrow creeks. Although counting was optional and datasets are incomplete, the (admittedly non-synchronous) site total of almost 20,000 Black-headed Gulls on the Firth of Forth serves as an example of the high numbers of this species present on estuaries. The proportion of Black-headed Gulls recorded as feeding at low tide was 60%.

COMMON GULL *LARUS CANUS*

The Common Gull is a widespread and numerous species throughout most of the UK during the winter, using both terrestrial and wetland habitats; the latter (including estuaries) are often used as nocturnal roost sites (Lack 1986). Wintering birds in the UK are a combination of UK breeders and immigrants from, especially, Fennoscandia, the Baltic States and Western Russia (Wernham *et al.* 2002). No SPAs in the UK have been designated for their value to wintering Common Gulls (Stroud *et al.* 2001).

Common Gulls were recorded at 53 of the sites under review, with the species being recorded on 19% of visits. However, recording of gulls was optional for counters and the remaining nine sites had no or few gull counts submitted; it is unlikely that the species was entirely absent from any site. Given the optional nature of gull recording for the scheme, it is not possible to discuss in detail the within-site distribution of Common Gulls, nor the numbers present on most sites, although the highest site total of over 8,000 (albeit not a synchronous count) on the Firth of Forth highlights the large numbers of this species using estuaries at low tide. The proportion of Common Gulls recorded as feeding at low tide was 52%.

LESSER BLACK-BACKED GULL *LARUS FUSCUS*

Lesser Black-backed Gulls occur widely in the UK outside the breeding season, involving two subspecies, *graellsii* (mostly breeding in Britain and Ireland) and *intermedius* (breeding from the Netherlands to southern Scandinavia), whilst the nominate race (breeding in northern Scandinavia and migrating to East Africa) appears to be genuinely rare in the UK (Wernham *et al.* 2002). Lesser Black-backed Gulls appear to have changed their habits with regard to wintering in the UK: in the first gull roost survey in the UK in January 1953, 165 Lesser Black-backed Gulls were located, but by January 1993 this had risen to about 61,000 (no equivalent estimates are available for Ireland) (Burton *et al.* 2002c). The change in habits has been attributed, in part at least, to the increased availability of food at large landfill sites. Birds also occur on farmland and widely around the coast, including estuaries. Like other gulls, Lesser Black-backed Gulls congregate at nocturnal roost sites, including many estuaries. No SPAs in the UK have been designated for their value to wintering Lesser Black-backed Gulls (Stroud *et al.* 2001).

Lesser Black-backed Gulls were recorded at 48 of the sites under review, with the species being recorded on 7% of visits, although recording of gulls was optional for counters and many of the remaining sites had no or few gull counts submitted. However, zero returns for the Ythan Estuary, Montrose Basin and the Tyne Estuary reflected a generally low density in the north-east in the winter. Given the optional nature of gull recording for the scheme, it is not possible to discuss in detail the within-site distribution of Lesser Black-backed Gulls, nor the numbers of birds present on estuaries at low tide, although the peak site total was 867 at the Alt Estuary in December 1998. The proportion of Lesser Black-backed Gulls recorded as feeding at low tide was 44%.

HERRING GULL *LARUS ARGENTATUS*

The Herring Gull is a common and widespread species around the coasts of the UK throughout the year. Additionally, large numbers of birds are also found inland in the winter, often attracted by refuse tips (Lack 1986). Breeding birds of the subspecies *argenteus* mostly remain around the UK all year. The nominate race *argentatus* breeds in north-west Europe and many of these birds winter in the UK; many of the Herring Gulls wintering inland appear to be of this race (Wernham *et al.* 2002). No SPAs in the UK have been designated for their value to wintering Herring Gulls (Stroud *et al.* 2001).

Herring Gulls were recorded at 54 of the sites under review, with the species being recorded on 30% of visits. However, recording of gulls was optional for counters and the remaining eight sites had no or few gull counts submitted; it is unlikely that the species was entirely absent from any site. Given the optional nature of gull recording for the scheme, it is not possible to discuss in detail the within-site distribution of Herring Gull, save to mention that higher concentrations were apparent around some harbours and docks, such as at Tynemouth, Hartlepool and Inverness. Similarly, it is not possible to discuss numbers of birds recorded, although particularly high site totals were recorded at the Firth of Forth (with a non-synchronous peak total of almost 25,000 birds), the Alt Estuary and Belfast Lough. The proportion of Herring Gulls recorded as feeding at low tide was 52%.

GREAT BLACK-BACKED GULL *LARUS MARINUS*

The Great Black-backed Gull is the largest and the least numerous of the five *Larus* gulls in the UK. In the winter, the whole coast is occupied by the species, which also penetrates inland at this time, although inland birds are most numerous in eastern England and Scotland (Lack 1986). Many UK breeders are only locally dispersive in the winter but numbers are supplemented by an arrival of Norwegian birds along the east coast, with smaller numbers from Iceland and the Faeroes arriving in the north-west (Wernham *et al.* 2002). No SPAs in the UK have been designated for their value to wintering Great Black-backed Gulls (Stroud *et al.* 2001).

Great Black-backed Gulls were recorded at 51 of the sites under review, with the species being recorded on 17% of visits. However, recording of gulls was optional for counters and the remaining sites had no or few gull counts submitted; it is unlikely that the species was entirely absent from any site. Given the optional nature of gull recording for the scheme, it is not possible to discuss in detail the within-site distribution of Great Black-backed Gull, nor the precise numbers present, although the highest site totals (albeit not made as synchronous counts) were consistently recorded at the Firth of Forth, with over 1,000 recorded monthly. Large counts were also recorded at the Tees Estuary and Pegwell Bay. The proportion of Great Black-backed Gulls recorded as feeding at low tide was 38%.