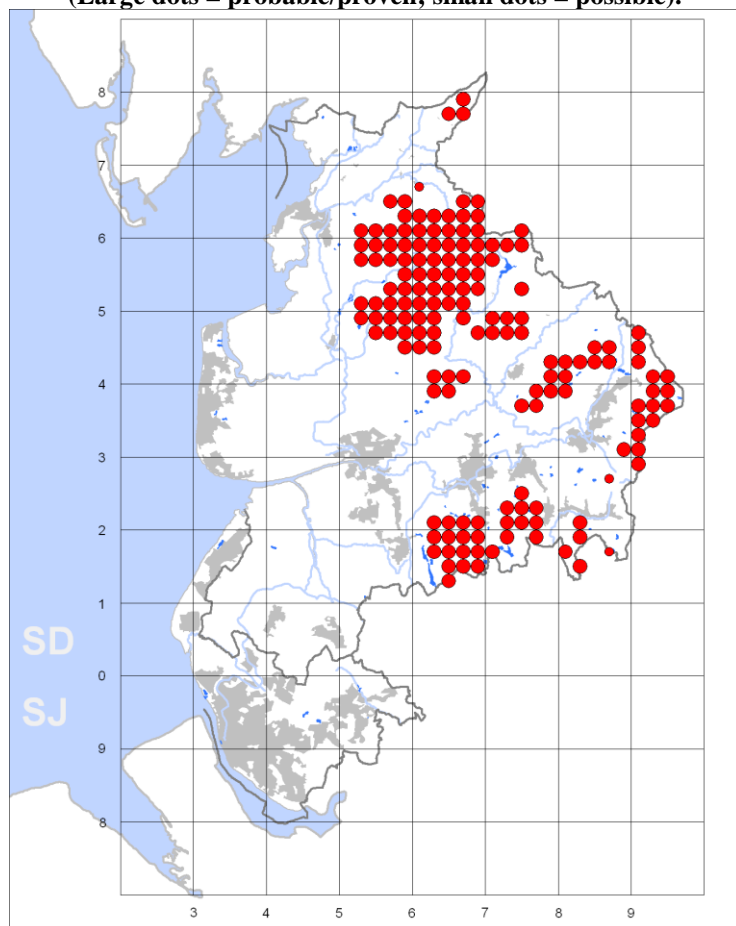


RED GROUSE *Lagopus lagopus*

Breeding

Red Grouse were found in 154 tetrads, 17% of the county total, during 2008-2011 (Fig.1). Their distribution perfectly matched the extent of Lancashire's heather moorland from the vast grouse-moors of Bowland and its outlying fells, Pendle and the moors above Colne, the managed grouse-moors of Emmott and Lancashire Moors and the South Pennines, to Rossendale and the West Pennine Moors.

Figure 1. Red Grouse: breeding distribution, 2008-2011.
(Large dots = probable/proven; small dots = possible).



No birds have been recorded on the lowland moors since the 1970s and the species is now restricted to the uplands ranging from below 150m on Harrisend Fell on the western edge of Bowland up to Lancashire's highest point at Green Hill on Gragareth (at 628m).

The Bowland Fells have long been one of the English strongholds of Red Grouse going back to the all-time British record bag of 2929 shot on the Abbeystead estate on 12 August 1915 and beyond. Numbers shot in Lancashire and Britain had declined dramatically by the 1950s but later increased on some of the county's larger estates such as Abbeystead and Bleasdale due to the restoration of traditional management. The louping-ill virus then ravaged the population, reducing ten-year average bags at Abbeystead from 5000 in the early 1990s to 600 at the start of the current survey

However, 2008-2011 saw a strong upsurge in numbers and bag sizes on managed moors after the introduction of measures to deal with disease. Spring densities on four Bowland estates increased markedly from 18.5 pairs/km² in 2005 to 52 pairs/km² in 2011, with a corresponding increase in the July density from 75 birds/km² in 2005 to 149 birds/km² in 2011. Management has also been increased on some formerly neglected moors on the edge of Bowland such as Easington Fell and Claughton Moor but has declined on others, such as Leck Fell.

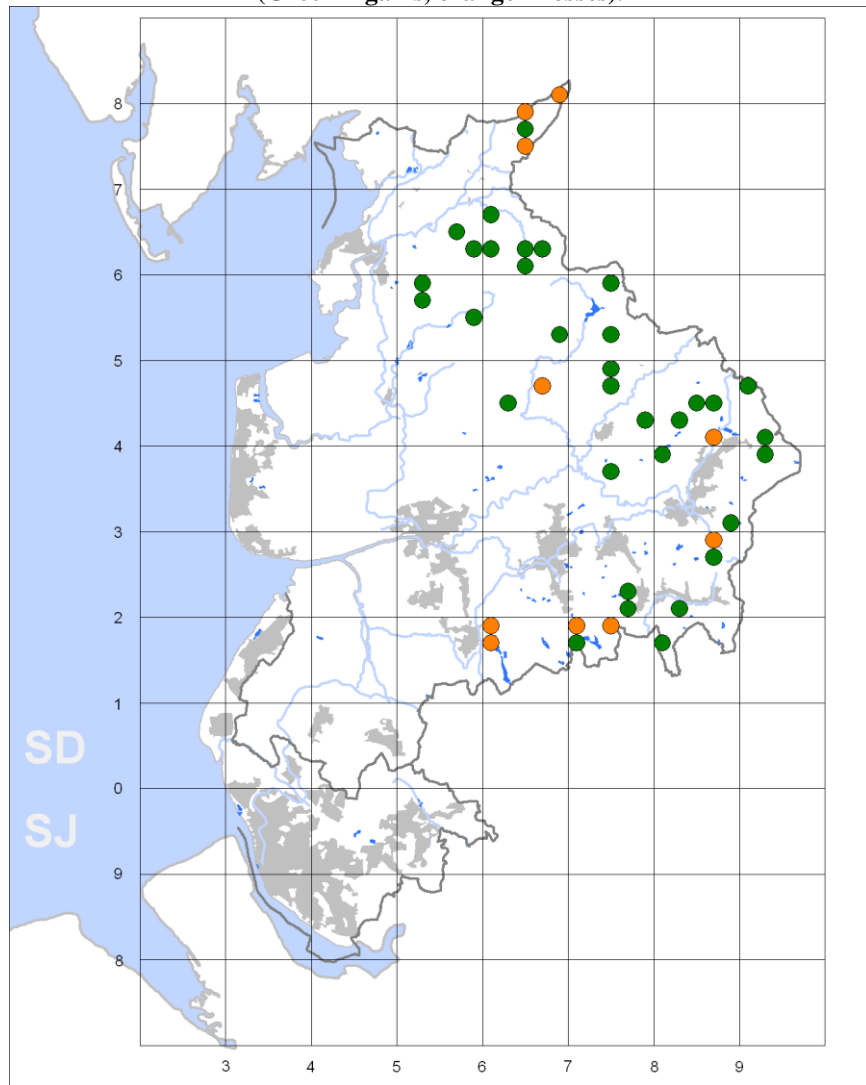
This general prosperity during the atlas period, particularly in Bowland, is clearly reflected in the breeding change map with a broad increase in distribution evident across the county and a range extension of 15% – probably more due to increased numbers enabling detection rather than true range expansion, although birds recorded on Cheetham Close/Turton Heights for example, were thought to be the first there since the 1970s (Fig.2).

Away from Bowland, breeding densities differ enormously from just single pairs on some of the large Rossendale plateaux to populations of many hundreds on the managed South Pennine Moors and parts of the West Pennine Moors. Counts for the atlas resulted in breeding season estimates of 50 birds per tetrad on Stiperden Moor and 210 in three adjacent tetrads across Darwen and Anglezarke Moors.

Although Red Grouse populations are highly cyclical, it is thought that the Lancashire population at the end of the survey was probably as high as at any time since the early 1990s, with an estimated 6000 pairs breeding in the county, double that estimated during the 1997-2000 survey and nearly 4% of

the British population of 155000 pairs. This can be roughly broken down to some 5000 pairs in Bowland, 250 pairs on the outlying Bowland Fells and Pendle, 500 pairs on the managed South Pennine Moors plus 250 pairs on the West Pennine Moors including a small number in Rossendale.

Figure 2. Red Grouse: changes in breeding distribution, 1997-2000 to 2008-2011.
(Green = gains, orange = losses).



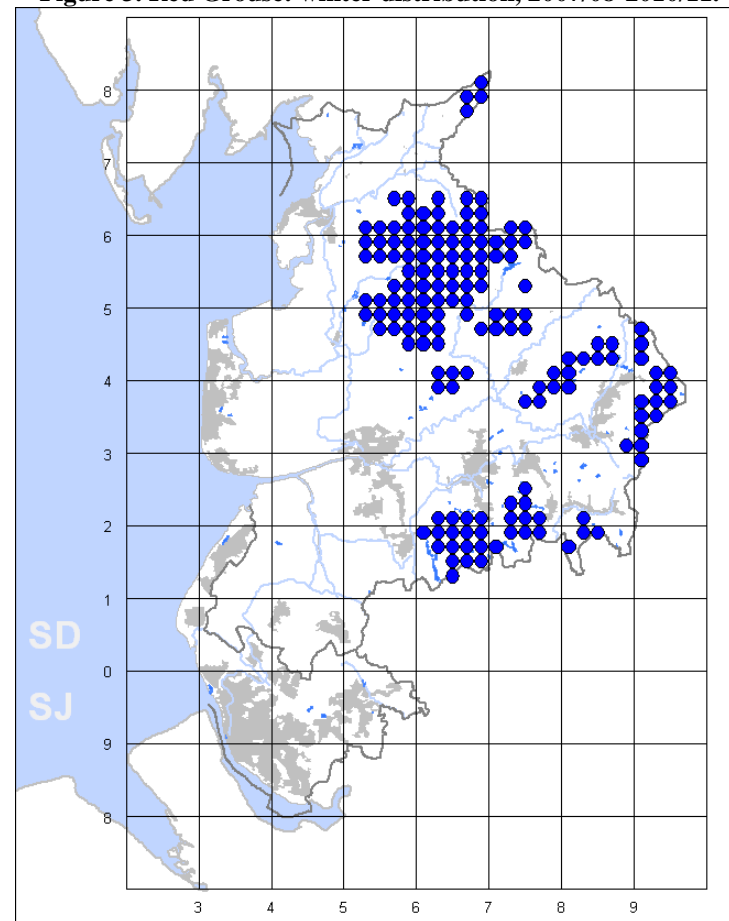
Winter

Nearly 3000 birds were recorded in 157 tetrads, their distribution essentially the same as in summer (Fig.3). These included nine tetrads in the Bowland Fells with over 100 per tetrad and a highest count of 154 on Whitendale Fell. Outside of Bowland only one winter tetrad count exceeded 100 – 120 on Darwen Moor although two adjacent tetrads on Boulsworth Hill approached this figure.

The winter population probably approaches 20000 with considerably more present in late summer immediately prior to the shooting season.

SJM

Figure 3. Red Grouse: winter distribution, 2007/08-2010/11.



BLACK GROUSE *Tetrao tetrix*

There have been rumours of occasional birds seen in Bowland on several occasions since the last confirmed record in 1997 signalled the end of Lancashire's resident population. Taking into consideration some records that have recently come to light, this population possibly numbered as many as 15 individuals at the start of the 1990s but was soon to collapse.

During the present survey the sighting of a male, possibly accompanied by female(s), on Pendle Hill in February 2008 is thought most likely to have been the result of undocumented releases, since the dispersal dynamics of this species mean that males largely stay close to their natal area while first-year females often disperse widely. Therefore any natural re-colonisation of Lancashire, from the nearest extant population in the southern Yorkshire Dales, would almost certainly be by way of lone females long, if ever, before any males.

Given the above, the sighting of a female in a remote part of north-east Bowland in early spring 2011 was highly significant; the record was very likely to have been a genuine wild bird as the location lies within the known dispersal range of resident populations outside the county.

There were no further sightings, or even rumours, during 2007-2011. However, habitat enhancement by several major landowners in Bowland has created a potentially ideal environment for this species, so that the Game and Wildlife Conservation Trust is currently considering areas of Bowland as part of the project to restore the distribution of Black Grouse in northern England by translocating males to suitable former sites within the dispersal range of females from existing populations.

SJM

QUAIL *Coturnix coturnix*

Breeding

Were it not for the distinctive song of the male, the presence of Quails would go largely undetected within their preferred cereal-field haunts on the lowland moorlands. The males call frequently throughout the hours of darkness and twilight with a peak in vocal activity around two hours before dawn. Double-counting of unmated mobile males is likely although males, once mated, those that cease calling early in the season can go undetected. The

presence of females is extremely hard to ascertain and it is even more difficult to obtain proof of a breeding attempt.

It is therefore not surprising that there were no proven records of breeding in the county during 2008-2011, with probable breeding records mostly relating to long-staying singing males considered to be territorial. However, the presence of these territorial males singing through the breeding season may be indicative of a shortage of females as mated males rarely sing and often start their return migration once incubation is underway.

The table below (figures taken from the annual Lancashire Bird Reports) shows the numbers that reached Lancashire during the survey years; 2008 and to a lesser extent 2011 were considered 'Quail-years' when significant numbers reached the county.

Year	No. of singing birds	No. of sites
2008	38	21
2009	20	15
2010	15	11
2011	31	20
Average	26	16.75

Some calling birds are likely to be continuing migrants that quickly move on, as probably were the six birds recorded in the eastern uplands of Lancashire over the atlas period – although there have been suggestions that some released or escaped birds could be involved.

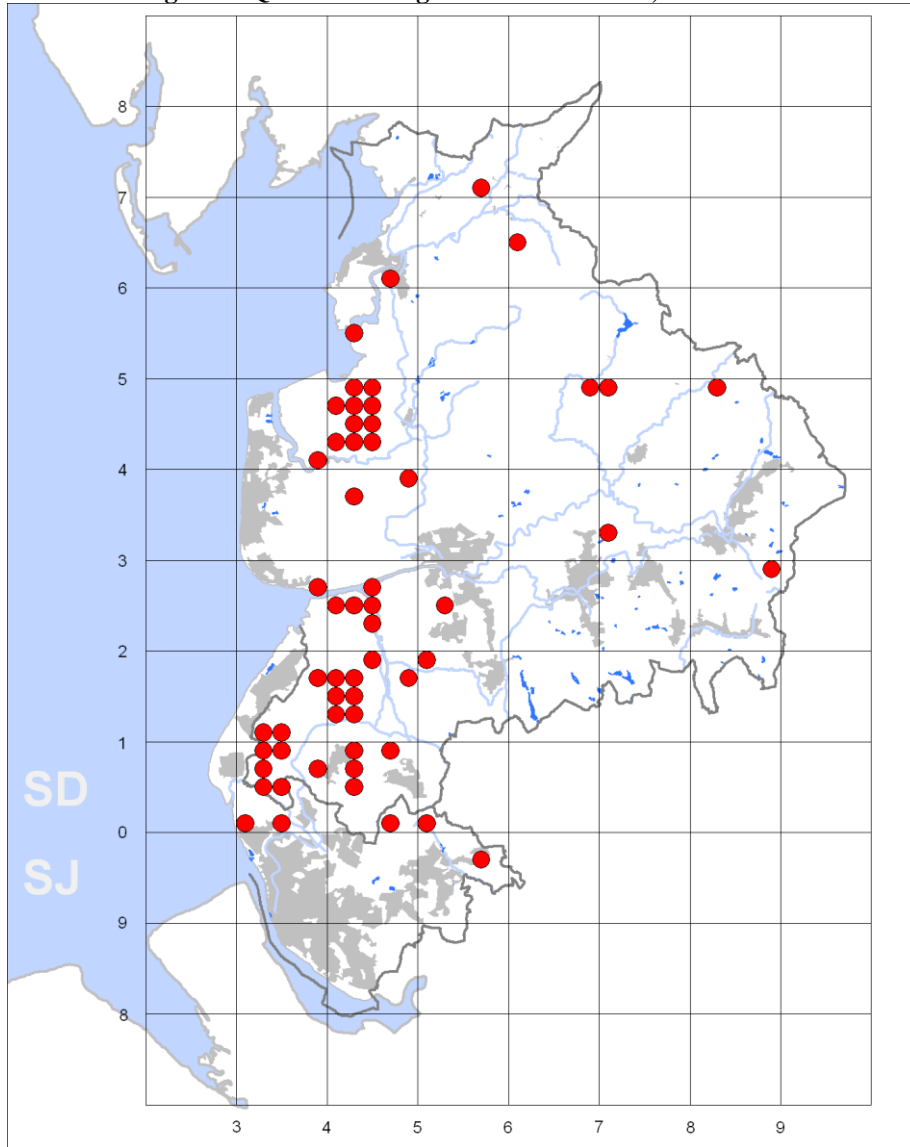
Quails were recorded in 56 tetrads during 2008-2011 compared with 45 during 1997-2000 (Fig.1). Their distribution in the county mirrors the cereal-growing districts of the lowland west, with concentrations on the south-west moorlands between Formby and Ormskirk, the moorlands inland of Southport including around Martin Mere, the reclaimed farmland south of the Ribble plus a particular concentration in north Fylde.

Nationally, an average of fewer than 300 singing birds are recorded annually with a peak of 2600 in the 'Quail-year' of 1989 when 50 were reported in Lancashire. An average of 26 singing birds were reported in the county over the atlas period whilst the 1997-2000 atlas conservatively reported just five pairs. However, the latter may still be correct in relation to pairs that actually breed. The long-term trend is unclear given the large

annual fluctuations and taking into account the increased numbers of observers.

SJM

Figure 1. Quail: breeding season distribution, 2008-2011.

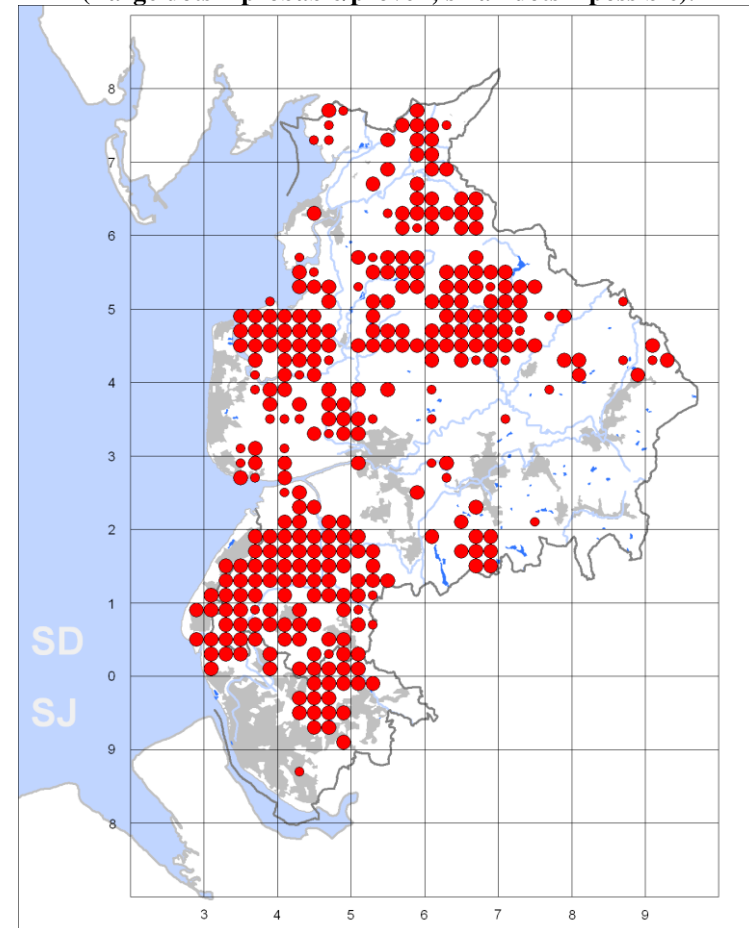


RED-LEGGED PARTRIDGE *Alectoris rufa*

Breeding

Despite the species' presence in 316 tetrads (34% of the county total) during 2008-2011, it was only in 36 of these that breeding was proven, invariably by seeing adults with a brood (Fig.1). By far the majority of these were on the arable moorlands of the south-west and the Fylde – a habitat where conditions are the closest match to its native range in the western Mediterranean and offer the best chance of allowing a self-maintaining population to become established.

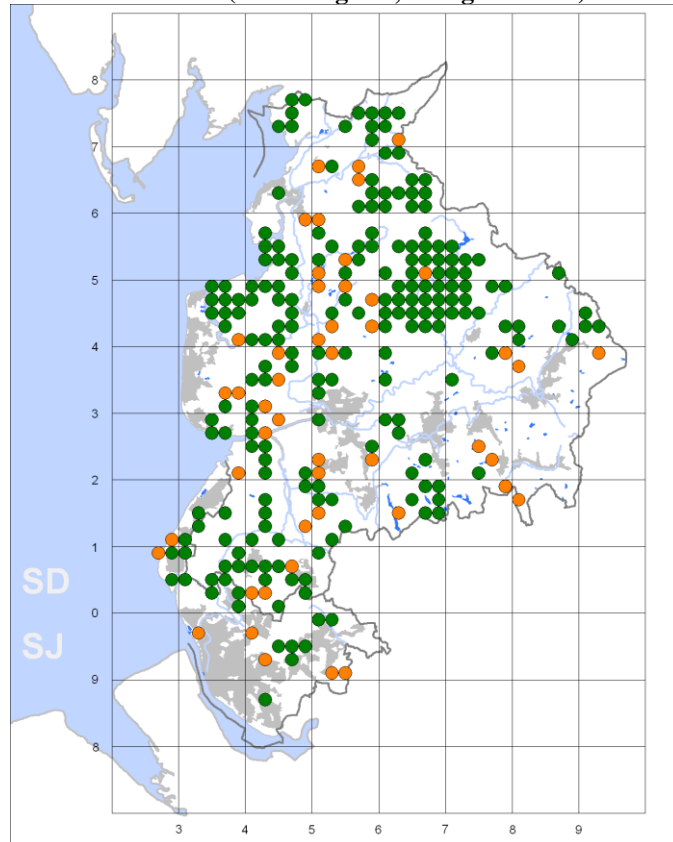
Figure 1. Red-legged Partridge: breeding season distribution, 2008-2011.
(Large dots = probable/proven; small dots = possible).



As with the Pheasant, the status of this non-native species in Lancashire is being constantly maintained by releases. Nationally, it was estimated that some 6.5 million were released in 2004, a massive 200-fold increase between 1961 and 2011. It is estimated that as many as 30000 Red-legged Partridges are released annually in Lancashire, with 18000 released on two estates (one lowland, one upland) alone in 2008.

The breeding population and distribution have shown a doubling in numbers and range between the two county atlas surveys with numbers increasing from 1500 to 3000 pairs. However, the vast majority of the proven/probable records relate to probable breeding in the form of territorial birds or pairs, most of which are not thought to attempt to breed, particularly in the uplands.

Figure 2. Red-legged Partridge: changes in breeding season distribution, 1997-2000 to 2008-2011. (Green = gains, orange = losses).

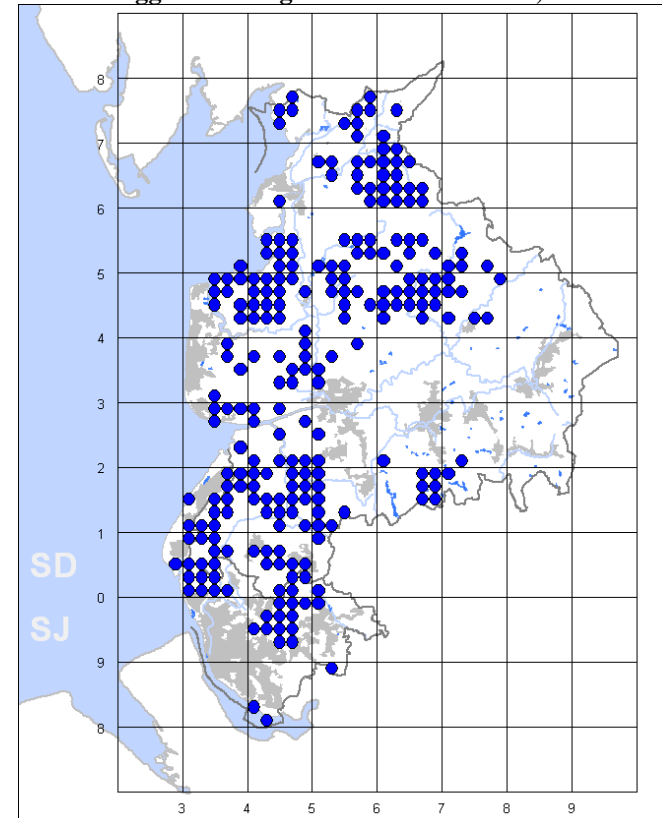


Distribution has increased throughout the county but especially in Bowland where the species was largely absent at the time of the 1997-2000 survey (Fig.2). The scale of releases increased initially as lowland shoots sought to replace the declining Grey Partridge, but latterly also in the uplands where it is seen purely as a put-and-take gamebird.

The size and trend of self-maintaining populations is poorly understood both nationally and locally, but it seems unlikely that any more than 50 pairs would persist for any length of time in Lancashire if releasing ceased. These wild and naturalised pairs are, however, dwarfed by the numbers released, two tetrads, both on the south-west mosses, reported 100 birds during the breeding season during 2008-2011, namely Little Crosby and Churchtown Moss.

Winter

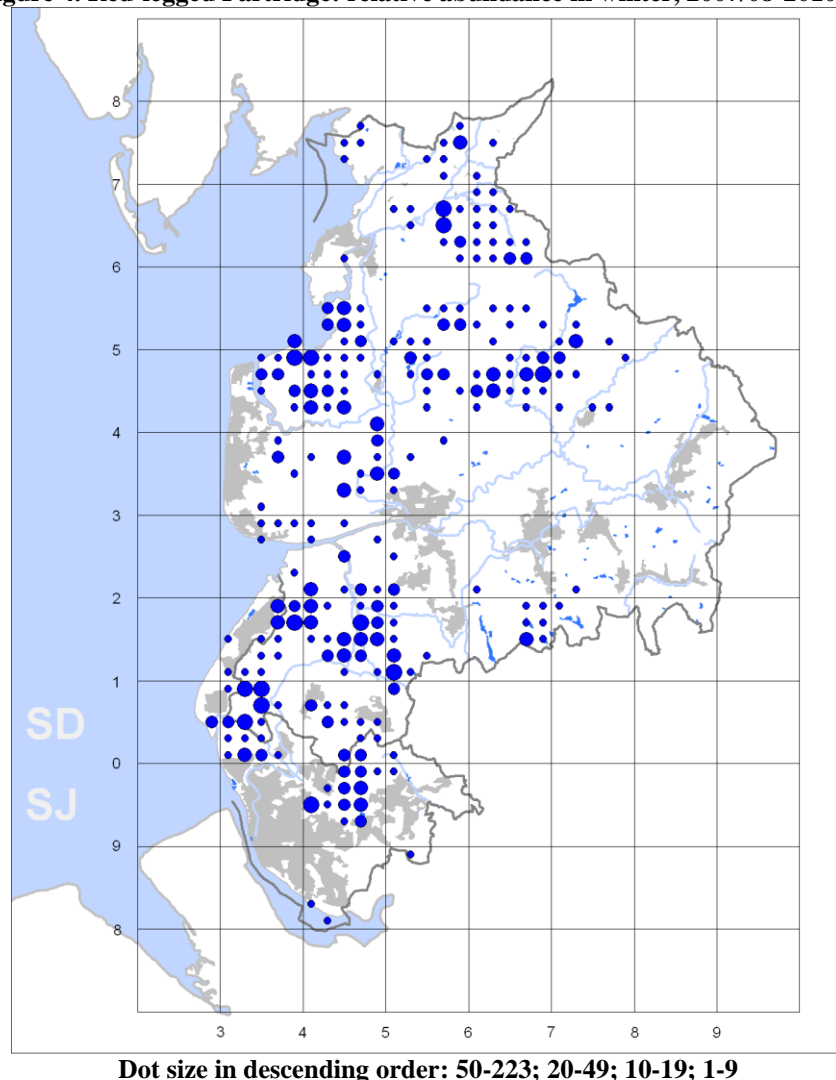
Figure 3. Red-legged Partridge: winter distribution, 2007/08-2010/11.



Red-legged Partridges were recorded in 239 tetrads during the winter period (Fig.3).

Perhaps surprisingly this was significantly fewer than in summer but the abundance map highlights the main areas of release on shooting estates, particularly throughout the south-west, the periphery of Bowland and north Fylde (Fig.4).

Figure 4. Red-legged Partridge: relative abundance in winter, 2007/08-2010/11.



The highest tetrad counts during winter included 223 on Churchtown Moss, 170 near Parbold Hill, 100 at Pilling and at Croston, plus counts of 110 and 152 from north and south-east Bowland respectively.

The late winter population was estimated at 5000 birds but, as with the Pheasant, immediately prior to the start of the Partridge shooting season in September, the county population of Red-legged Partridges possibly exceeds 35000, the vast majority being recently-released birds but with small numbers of naturalised birds from previous years and a negligible number of truly wild birds.

SJM

GREY PARTRIDGE *Perdix perdix*

Breeding

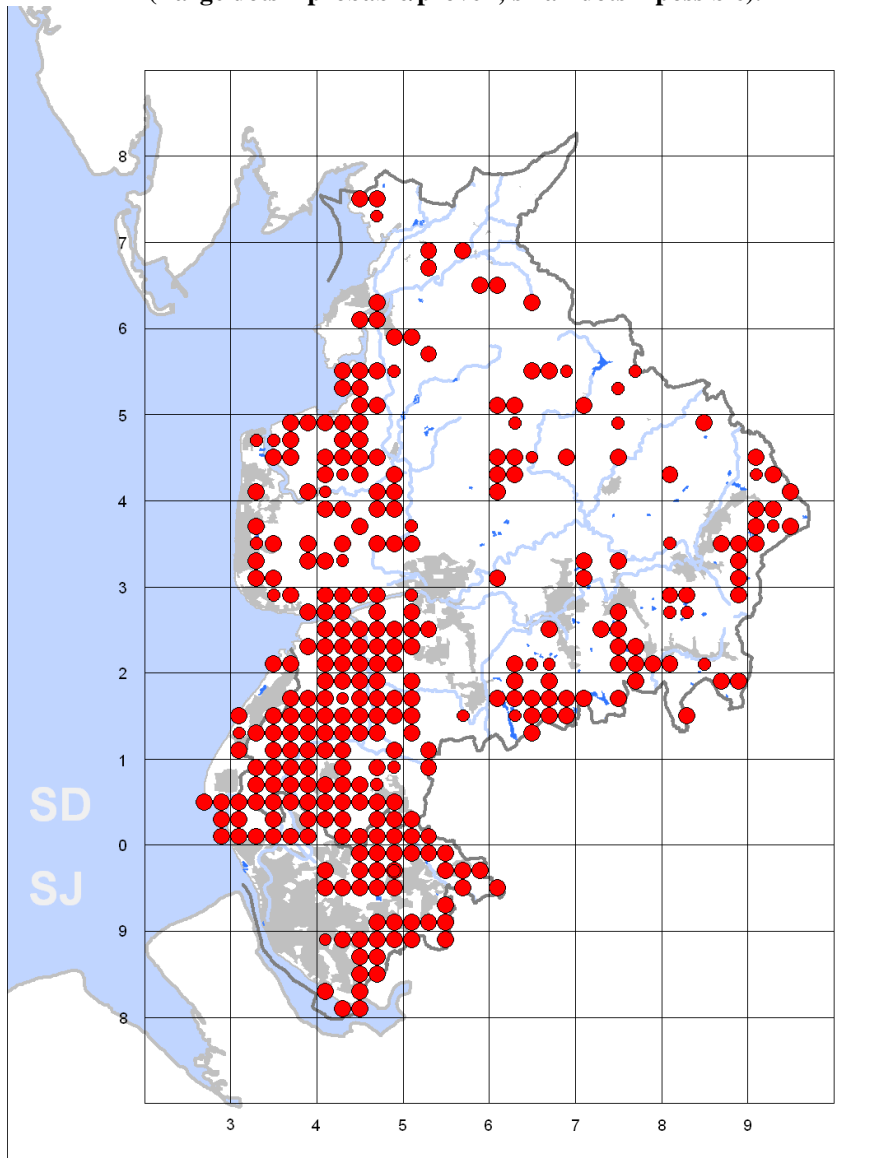
The breeding range contracted by 37% between the two surveys of 1997-2000 and 2008-2011 with Grey Partridges found in 491 tetrads (Fig.1). They are now very poorly distributed across the east of the county with only the upland in-bye pastures of the West Pennine Moors, Rossendale and South Pennine Moors holding any numbers and with the species effectively extinct across large swathes of improved pasture, including the Ribble and Lune valleys.

A total of 245 tetrads were apparently abandoned, offset by 64 newly-occupied tetrads (Fig.2). There was a notable cluster of losses in south Fylde but the species has also declined elsewhere in the west although still widespread and locally common in north Fylde, across most of the south-west moors and around the Liverpool hinterland.

Densities in occupied tetrads were twice as high in the west of the county than the east and 75% higher in the south than the north. Breeding population estimates from observers clearly signify the importance of the arable mosslands with 110 birds in two adjacent tetrads at Little Crosby, 90 at Hesketh Bank and 40 near Burscough, the south-west moors and north Fylde remain core areas for the species nationally.

The national population suffered a massive 91% reduction in numbers between 1970 and 2009 and the Lancashire population appears to have mirrored this, at least in the last decade or so. The county population is currently estimated at 1250 pairs, roughly 2% of the British total – a very similar proportion to that of 1997-2000.

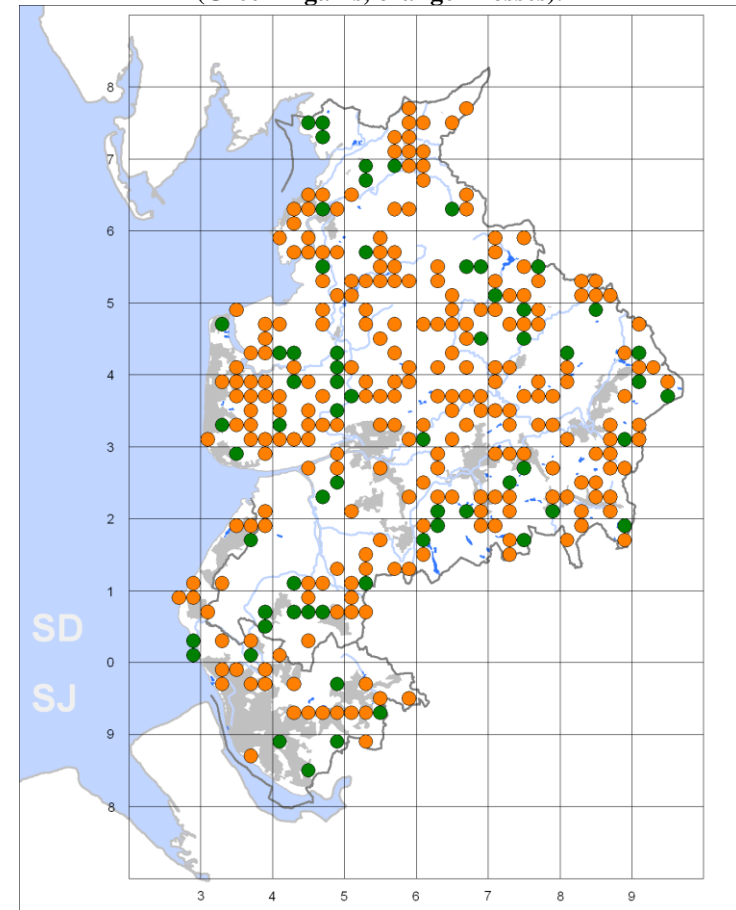
Figure 1. Grey Partridge: breeding distribution, 2008-2011.
 (Large dots = probable/proven; small dots = possible).



In 2008 the Game and Wildlife Conservation Trust described Lancashire as one of the ‘major areas’ for Grey Partridges in Great Britain. Sample results indicated spring pair densities of over 20 pairs/km² on the

mosses south of the Ribble and exceeding 8 pairs/km² over a wider area encompassing the Fylde and much of the south-west. The species was locally abundant on those few estates where wild stocks were preserved for shooting with, for example, the Halsall Estate of 1400 hectares holding some 200 breeding pairs at the start of the present survey period and shooting bags averaging over 10 birds/km² reported from a wide area of the south-west.

Figure 2. Grey Partridge: changes in breeding distribution, 1997-2000 to 2008-2011.
 (Green = gains, orange = losses).



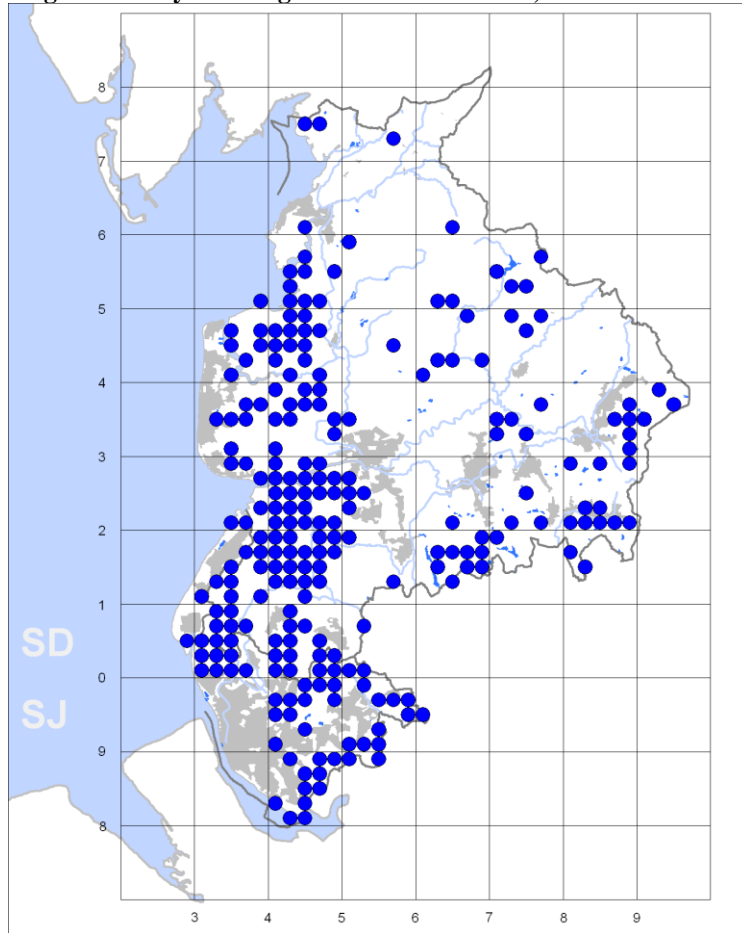
The three years up to 2009 experienced very poor weather at the peak hatching time for this species in mid-June, which greatly suppressed production of young; only in 2011 did the species enjoy good brood-rearing conditions.

Releases for shooting, whilst still occurring, are now small in comparison to the number of Red-legged Partridges, although the return of Grey Partridges to some areas, Silverdale for example, has undoubtedly involved released birds.

Winter

Birds were found in 234 tetrads, more than 50% fewer than in summer (Fig.3).

Figure 3. Grey Partridge: winter distribution, 2007/08-2010/11.



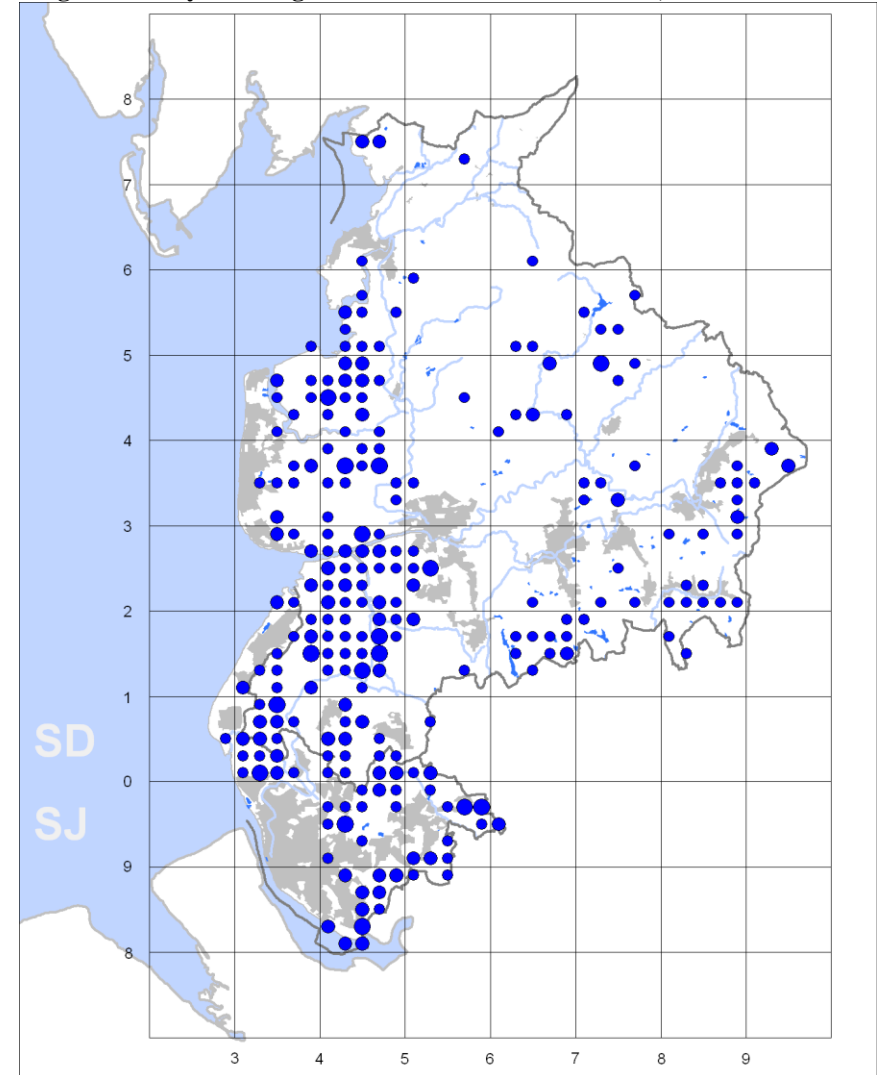
Their range, however, remained broadly similar and this apparent change in distribution, of what is an essentially sedentary species, was

perhaps largely due to short movements to form concentrations on the best feeding sites. Most high-density tetrads were found in the south and west of the county with just one in each of the east and north (Fig.4).

The winter population was estimated at 4000 individuals.

SJM

Figure 4. Grey Partridge: relative abundance in winter, 2007/08-2010/11.



Dot size in descending order: 30-71; 15-29; 5-14; 1-4

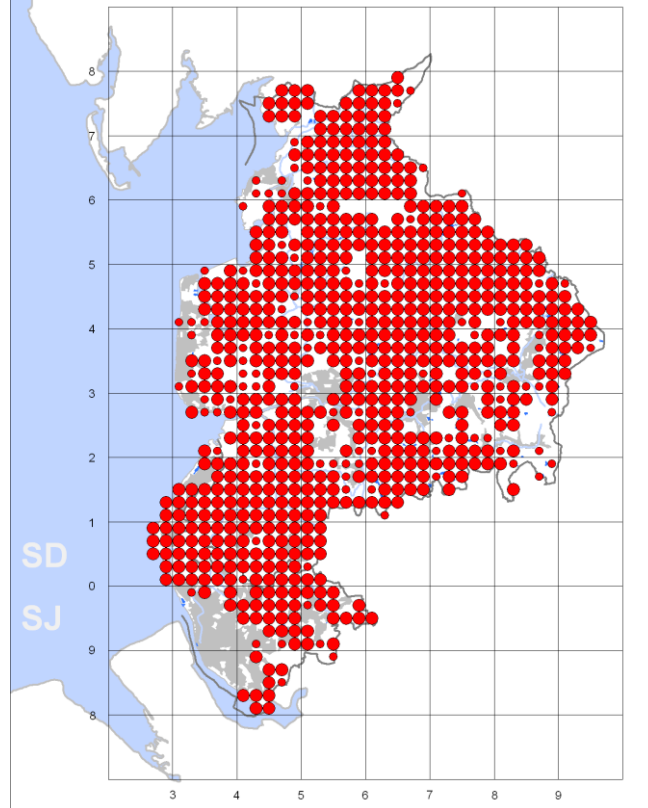
PHEASANT *Phasianus colchicus*

Breeding

Seen by many birders as little more than feral poultry, the non-native Pheasant is at the heart of a multi-million pound rural industry which continues to shape the management of large areas the British countryside. It is estimated that some 38 million are released annually in Britain, this number having increased nine-fold since 1961, but that the proportion of truly wild birds, that is birds hatched in the wild (although not necessarily from wild parents), could be as low as 10% of the population.

Pheasants were recorded in 773 tetrads during 2008-2011, some 80% of the county total and indicating a 15% range extension (Fig.1).

Figure 1. Pheasant: breeding season distribution, 2008-2011.
(Large dots = probable/proven/possible; small dots = present).

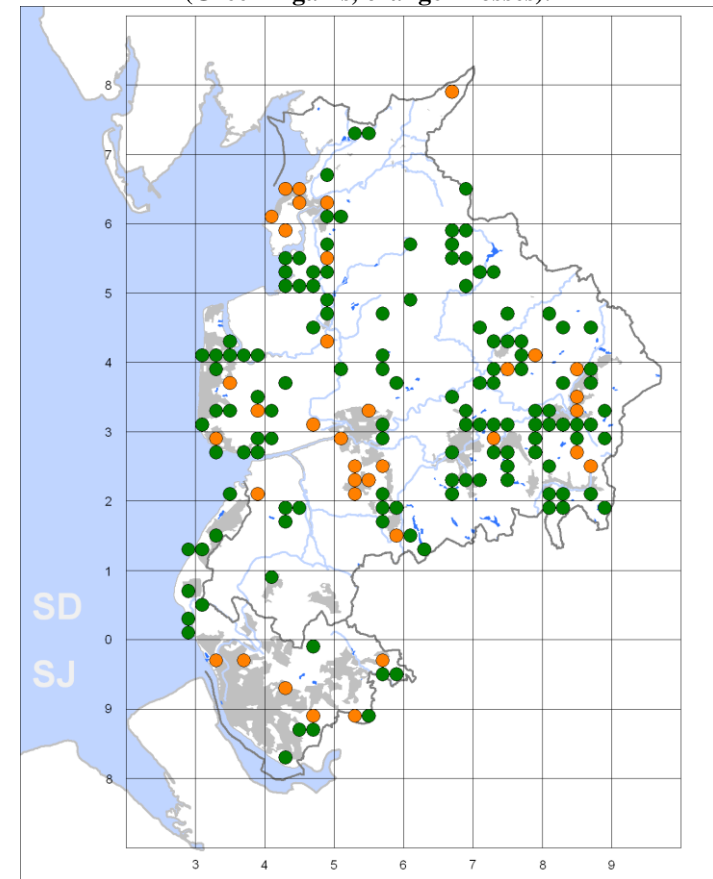


It is notable from the breeding season change map that the main gaps in distribution during 1997-2000 have now largely closed, particularly in the Rossendale valleys (Fig.2).

The only gaps in breeding distribution are now the main urban areas, the Rossendale uplands and the highest Bowland Fells. However, the species is common in many areas of deep heather and rush moorland up to 450m in altitude in the West Pennine Moors and the lower Bowland Fells.

The national population increased by 76% between 1970 and 2009. Given that an estimated 90% of birds are from released stock, this figure largely highlights trends in stocking rates.

Figure 2. Pheasant: changes in breeding season distribution, 1997-2000 to 2008-2011.
(Green = gains, orange = losses).



The highest tetrad counts recorded during 2008-2011 included 400 at Little Crosby, 500 at Wyredale Park near Scorton, 1500 in two adjacent tetrads on Churchtown Moss and 250 at Belmont. Given the scale and variability of releases it is difficult to put a figure on the total number present during the breeding season but a very rough estimate suggests some 12500 'pairs' may be present. However, this figure is misleading given that many first-year females do not breed and the polygamous nature of the species where harems of five females to one male are not uncommon. The size of the relatively small proportion of these that actually breed in the wild in Lancashire is unknown but perhaps around 2500 birds were hatched in the wild. It is highly likely however that if further releases ever ceased then Pheasants would become scarce throughout the county except perhaps in the Fylde and the south-west.

Winter

Pheasants were present in 692 tetrads, somewhat fewer than during the breeding season (Fig.3) but with an essentially similar distribution.

An estimated 100000 are thought to be released annually in Lancashire in late summer in time for the shooting season starting in October. The relative abundance map picks up these main areas of release, effectively mapping most of the large shooting estates in south-west Lancashire, the Douglas Valley, around Bowland and its valleys, the Lune Valley and to a lesser extent the Silverdale area, parts of the Fylde, the upper Ribble Valley and of the West Pennine Moors (Fig.4).

The almost continuous winter distribution elsewhere, broken only by the highest ground in Bowland and Rossendale, can be attributed to birds wandering from the main release areas and releases by numerous small shooting syndicates.

The winter population was estimated at 30000 individuals but in early winter before the shooting season it is highly likely that in excess of 150000 Pheasants are present in the county given the numbers of released birds plus wild/naturalised stock and their offspring.

SJM

Figure 3. Pheasant: winter distribution, 2007/08-2010/11.

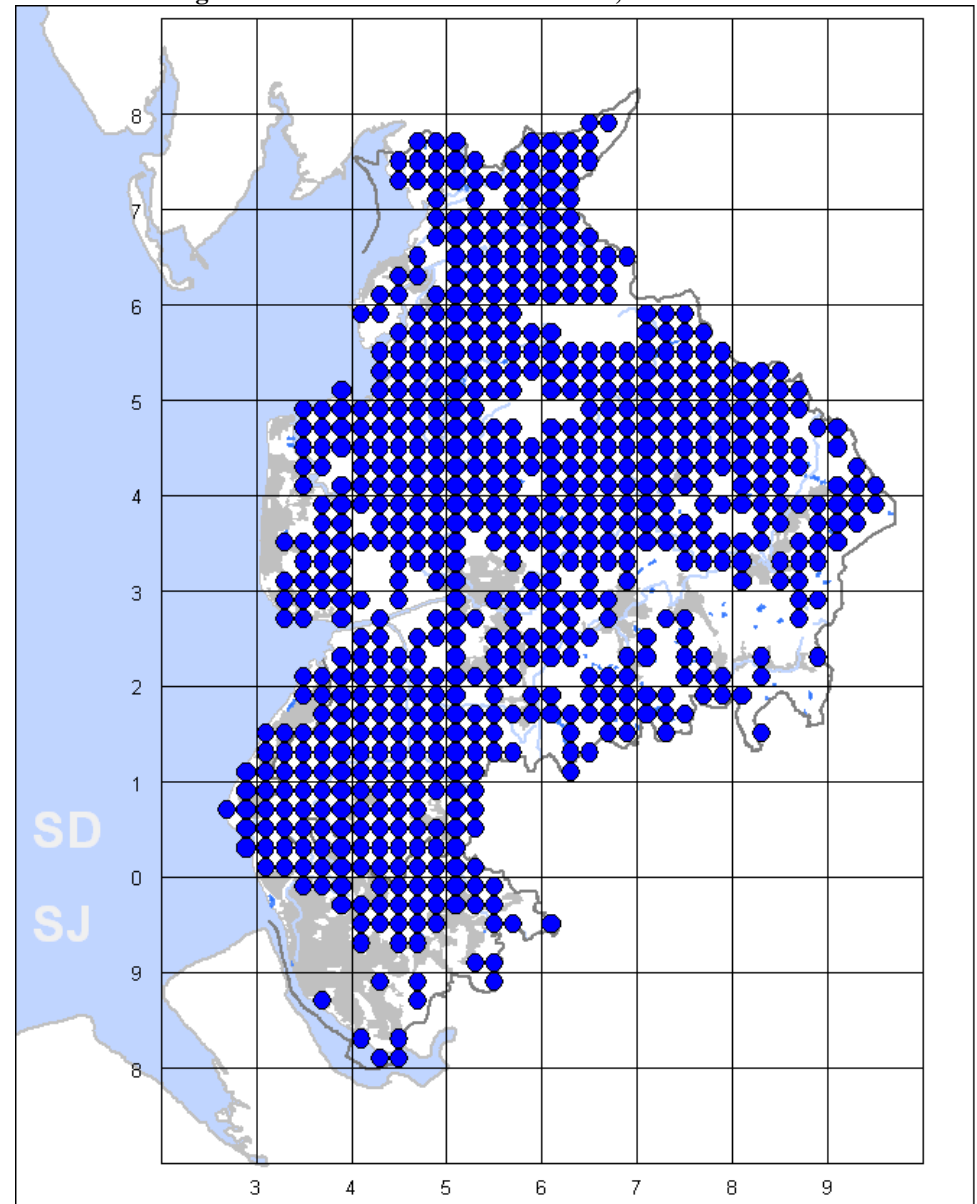
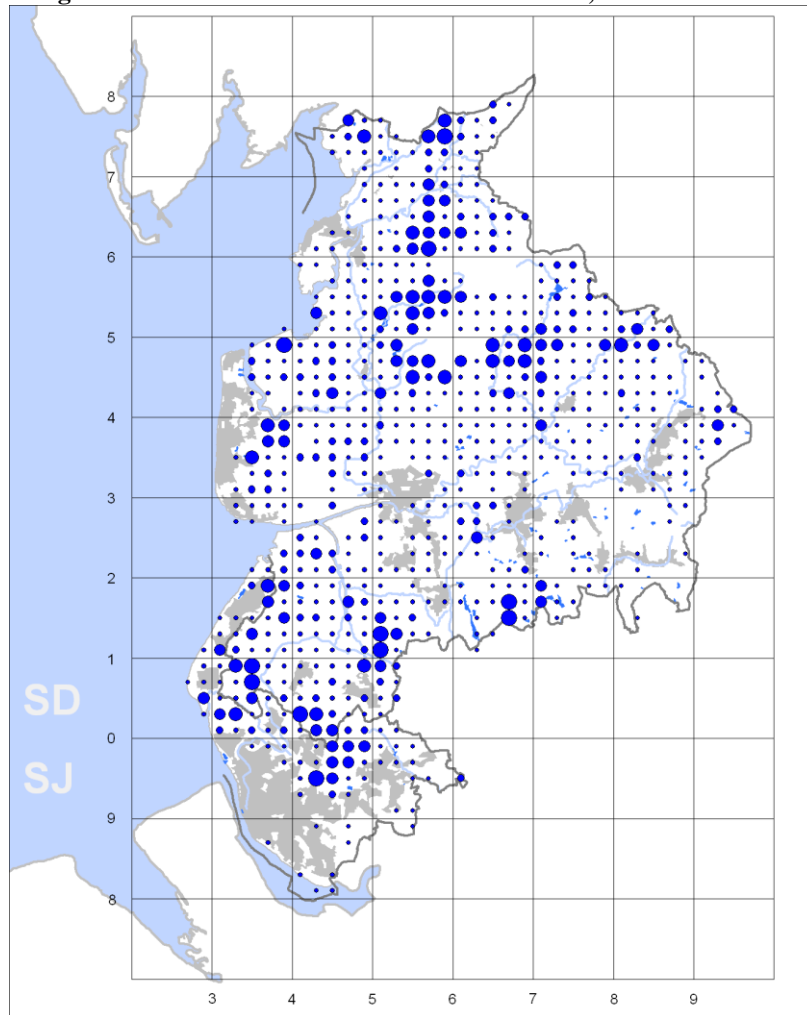


Figure 4. Pheasant: relative abundance in winter, 2007/08-2010/11.



Dot size in descending order: 100-220; 50-99; 20-49; 10-19; 1-9.

REEVES'S PHEASANT *Syrnaticus reevesii*

Released birds were seen throughout the year in at least 16 tetrads but most were clustered in three main areas, north and south Fylde and Bowland, with one record in Brownhill near Blackburn.

SJW

LADY AMHERST'S PHEASANT *Chrysolophus amherstiae*

Singles were seen at Little Singleton between June 2008 and March 2009, near Stocks Reservoir in January 2008 and four at Pine Lake in April 2010 – all had presumably been released nearby.

SJW

GOLDEN PHEASANT *Chrysolophus pictus*

Released or possibly escaped birds were recorded throughout the year in nine tetrads at six broad sites. A pair at Lytham Hall, where they have bred in the past, gave the only slight indication of breeding; the largest count was of nine released near Delph Reservoir.

SJW

RED-THROATED DIVER *Gavia stellata*

Red-throated Divers can be seen offshore in Lancashire in most months of the year but most are only viewable from land during the two passage movements. Shore-based counts of birds on northward passage in the early year typically reach double figures with the occasional record exceeding the hundred mark. The return passage, starting in September, again sees onshore numbers reaching double figures throughout autumn and into early winter. In the middle of winter larger numbers are present offshore but for the most part out of sight of land unless displaced by storms.

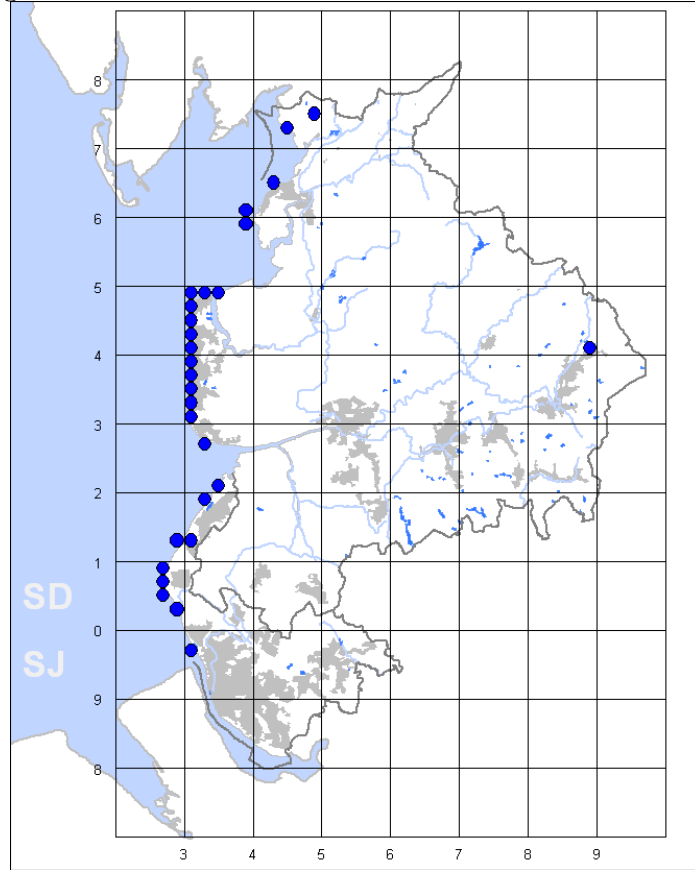
The wintering population of Liverpool Bay was estimated by aerial survey in 2001 at 1700, with the Lancashire population in excess of 250, or 1.5% of the British population; most of these birds were located between the Mersey and the Ribble. However, sea areas north of the Lune Deep off Fleetwood have never been surveyed.

Wintering birds were seen in – or more accurately from – 28 tetrads during 2007/08-2010/11 (Fig.1), but in reality this represents as much, if not more, the distribution of suitable seawatching sites and the varying efforts of dedicated seawatchers as of birds.

Records came from the length of the Sefton and Fylde coasts, predominantly from Formby Point, Blackpool and Rossall Point, and in Morecambe Bay from Sunderland Point, Heysham and Jenny Brown's Point.

The largest counts during the survey period were 180 off Blackpool in November 2010 with 137 there that December, and 115 off Formby Point in February 2009 with 115 there in January 2011.

Figure 1. Red-throated Diver: winter distribution 2007/08-2010/11



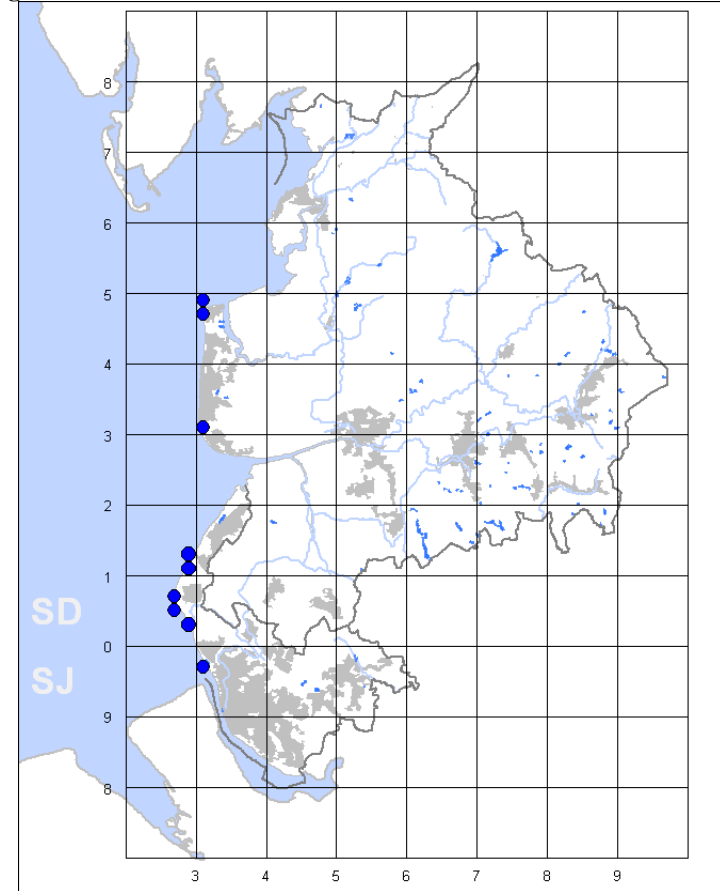
Inland records are scarce at best and usually relate to early or late trans-Pennine migrants. Singles were recorded during the survey years outside of the designated dates on Belmont and Rishton Reservoirs, but the only such record during the winter atlas period was one at Foulridge Reservoirs in late February 2008, although singles were recorded close to the sea at Leighton Moss in November 2009 and Crosby Marine Lake in December 2007 and February 2009.

RJH

BLACK-THROATED DIVER *Gavia arctica*

Typically sightings of Black-throated Divers peak in April and May as birds return to their breeding grounds. Outside of this period records tend to be few, and then only of singles.

Figure 1. Black-throated Diver: winter distribution 2007/08-2010/11



For many years most records have been in Liverpool Bay, seen off the Sefton and Fylde coasts, with very few in Morecambe Bay. This pattern was repeated during the 2007/08-2010/11 winter atlas survey during which singles were recorded from nine tetrads, all in Liverpool Bay between the mouth of the Mersey and Rossall Point (Fig.1).

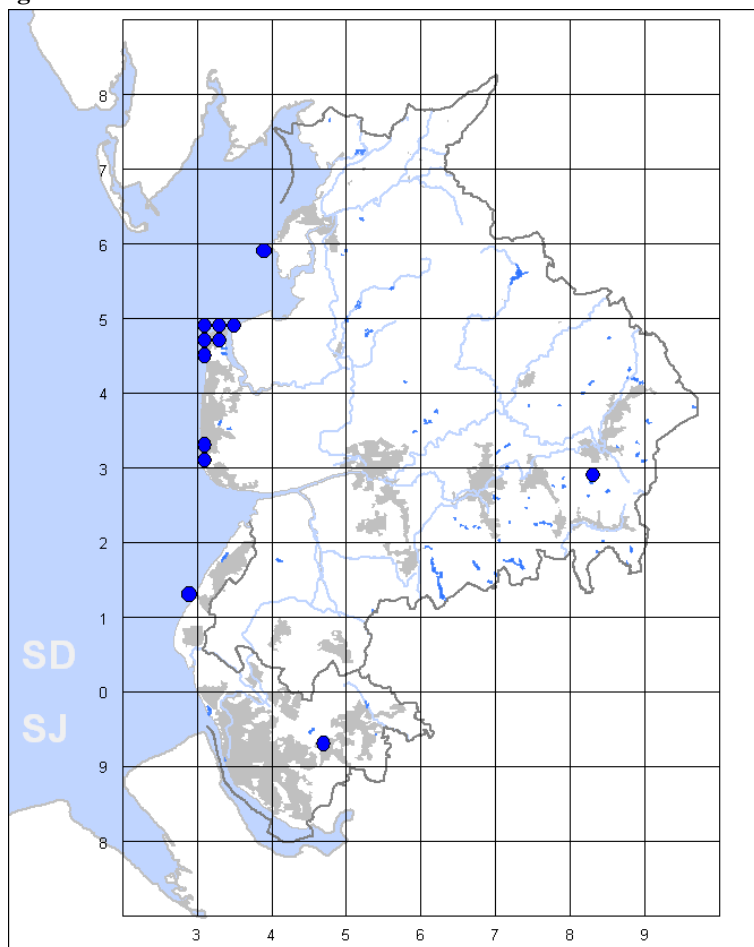
Black-throateds are the rarest species of diver in our waters, and even allowing for birds far offshore that go unrecorded, the Lancashire winter population rarely, if ever, exceeds low single figures – compared with a British total of 560.

RJH

GREAT NORTHERN DIVER *Gavia immer*

As with the other divers, Great Northern Divers are seen most frequently during the spring and autumn passage periods and less regularly during winter unless driven to shore by storms.

Figure 1. Great Northern Diver: winter distribution 2007/08-2010/11



More than half of the twelve singles during the winter atlas period were recorded in November and many may not have remained throughout the winter. As with other seabirds the distribution map (Fig.1) essentially shows the seawatching stations from which birds were seen, principally Ainsdale/Birkdale, Blackpool and Fleetwood in Liverpool Bay, and Heysham and Jenny Brown's Point in Morecambe Bay – unusually none was seen in the winter months from Formby Point although there were two records at either end of the season.

Two were seen inland, at Prescott Reservoirs in January 2009 and Clowbridge Reservoir in November to December 2007; additionally one was at Fleetwood Marine Lakes and Dock from November 2010 to January 2011.

RJH

FULMAR *Fulmarus glacialis*

Fulmars are primarily passage migrants in Lancashire, seen mainly in autumn gales. Despite being one of the most numerous seabirds breeding in Britain with a relatively stable population, it has never been common in Lancashire but for reasons unknown it has become increasingly scarce during the last ten years or so, even with the 'right' weather conditions at the right time of year.

The main passage period is during September and October with some stragglers into November, after which it becomes a rare sight. There were just five genuine winter records during 2007/08-2010/11, all singles offshore at Formby Point in December 2007, Knott End in January 2008, Blackpool and the mouth of the Mersey in February 2008 and Pilling in February 2011.

RJH

EUROPEAN STORM-PETREL *Hydrobates pelagicus*

In common with many other seabirds, Storm Petrels are seen most frequently off the Lancashire coast during late autumn but in recent years they have become more frequent in summer and early autumn.

There have been only four records during winter since the mid-twentieth century and one in the mouth of the Mersey on 11 November 2007, although occurring within the winter atlas dates, is best regarded as a late migrant.

RJH

LEACH'S PETREL *Oceanodroma leucorhoa*

Leach's Petrels are the star attraction of autumn seawatches off the Lancashire coast during and after gales, and a species for which the county is amongst the best sites to see them in England. They are seen occasionally during summer but mainly from late August through to October, with a few stragglers in November.

The four years of the atlas survey were not especially productive and although there were five records (two in Morecambe Bay, three in Liverpool Bay), involving a total of ten or so birds, during the winter atlas periods, all were in November and are best regarded as late migrants.

RJH

GANNET *Morus bassanus*

Like all other true seabirds, Gannets are essentially passage migrants in Lancashire, occurring, sometimes in good numbers, in both spring and autumn and seen regularly in smaller numbers during the summer.

They are, however, rare in winter. There were just three records of ones or twos offshore during 2007/08-2010/11: off Crosby Shore in December 2007, Blackpool in December 2009 and Rossall Point in February 2010.

RJH

CORMORANT *Phalacrocorax carbo*

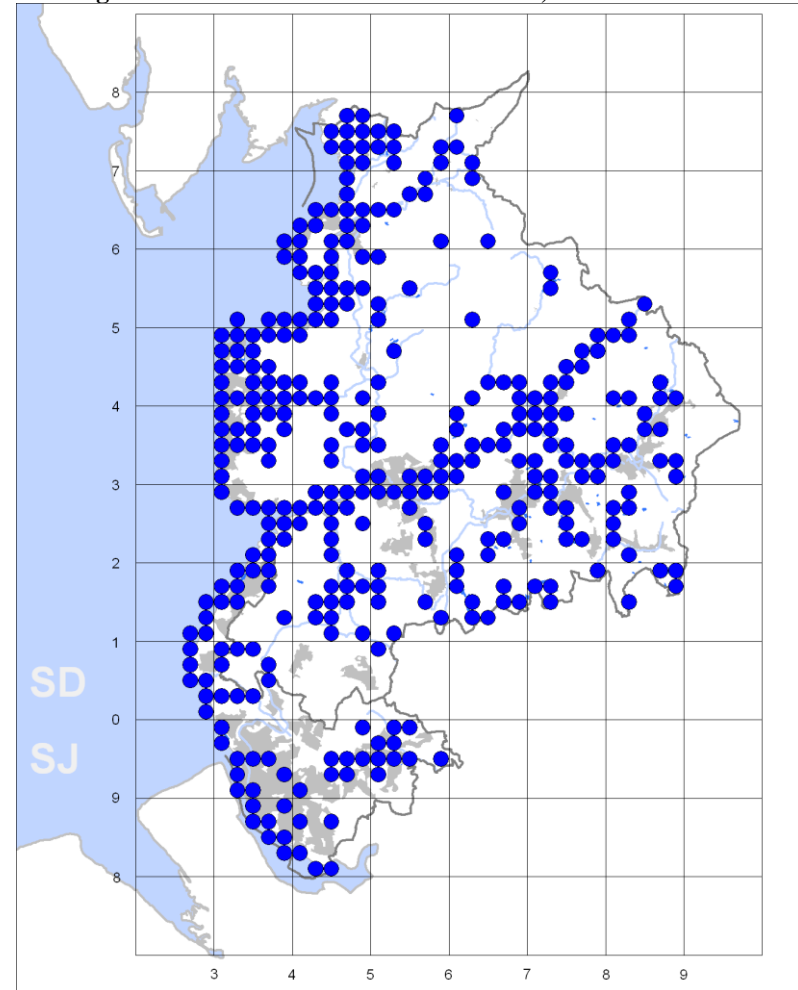
After many years of steady increases in the British wintering population, due in part to an increase of *sinensis* (and some nominate *carbo*) birds nesting inland, numbers now appear to be stabilising or possibly declining, perhaps as a result of intensive culling on many inland fisheries. Numbers in Lancashire have also been increasing for 20 years or more but as yet show no signs of any decline.

Virtually all of our coastal birds appear to be *carbo* (thought to be more than 99.5% at Seaforth, for example), although Cormorants wintering inland have not been well scrutinised.

Liverpool Bay is probably the species' most important winter site in Britain and, although no comprehensive offshore survey data have been published, it is fairly certain that Cormorants feed in Lancashire waters in internationally important numbers. Morecambe Bay, including the section in Cumbria, where numbers have increased during the atlas survey period, is also nationally important. A boat survey in December 2010 located 700 in the

Lune Deep and 100 off the Wyre Light on the boundary between Liverpool and Morecambe Bays.

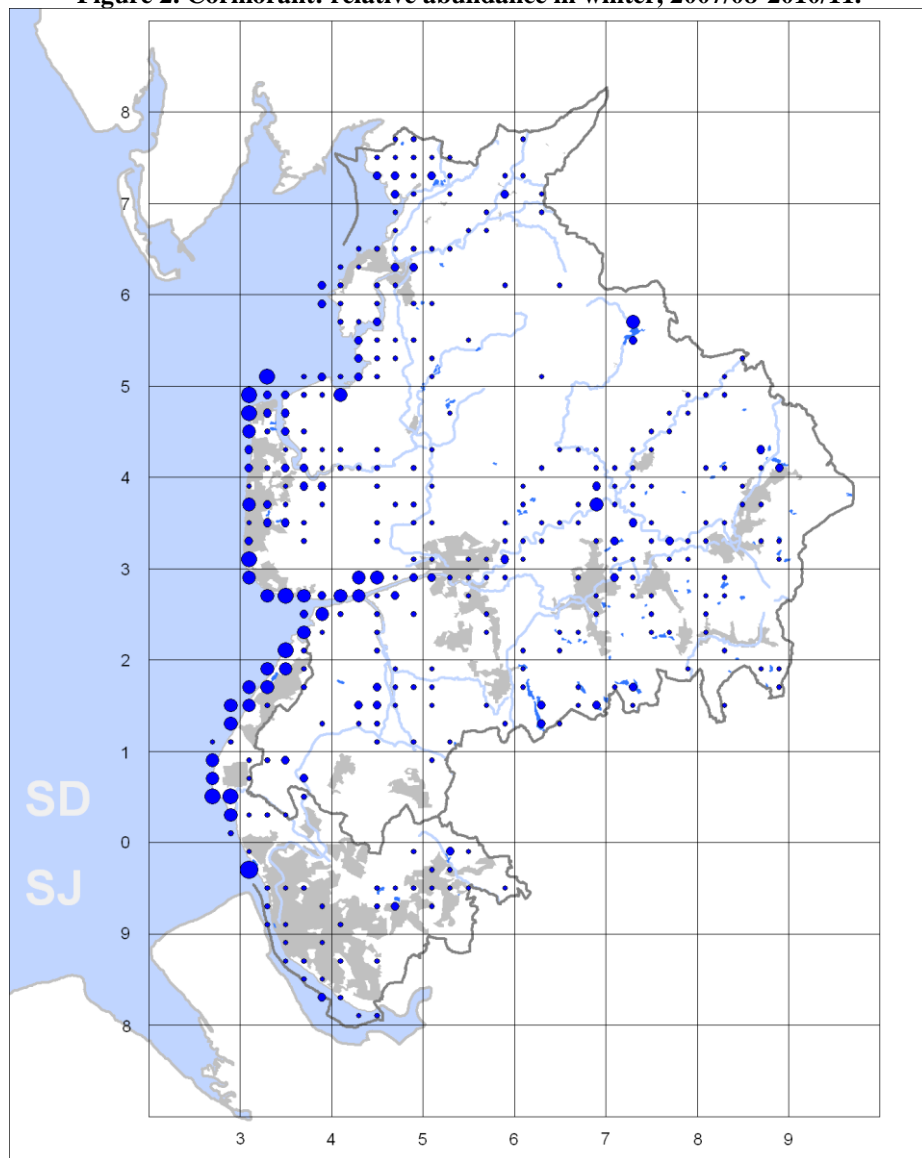
Figure 1. Cormorant: winter distribution, 2007/08-2010/11.



In calm conditions many birds roost at sea but onshore winds bring most to roost sites all along the Lancashire coast. Birds were recorded in 340 tetrads – 36% of the county total – during winter 2007/08-2010/11 (Fig.1). Every coastal tetrad was occupied at some time during the survey, as were all those on the Ribble, most on the Lune and almost all other inland waters.

However, a different picture emerges when relative distribution is taken into account, with all the largest counts occurring on the coast and only Stocks Reservoir holding significant numbers inland (Fig.2).

Figure 2. Cormorant: relative abundance in winter, 2007/08-2010/11.



Dot size in descending order: 1414; 350-700; 50-349; 1-50

Twenty-one tetrads held 100 or more birds during the survey years; the largest counts included a then county record 1414 at Seaforth in February 2011, 700 at Bispham and 630 at Rossall Point in December 2010, and 504 at Formby Point in November 2009. The largest count inland was 70 at Stocks Reservoir in December 2009.

The largest monthly WeBS counts for Morecambe Bay and the Ribble and Alt Estuaries combined averaged 1600 during the survey period, but peaks occurred in different months in each winter on the three estuaries and, taking inland totals into account, the average population estimate was closer to 2000, about 6% of the British population. However, numbers were considerably higher than this in 2011 and higher still after the conclusion of the survey in 2012.

RJH

SHAG *Phalacrocorax aristotelis*

Lancashire almost completely lacks any rocky shore habitat and consequently Shags have always been scarce; they are very rarely seen amongst roosting Cormorants.

Most records are of single juveniles, dispersing from breeding colonies elsewhere on the Irish Sea coast, but more are seen on occasions, and rarely as many as four or five together.

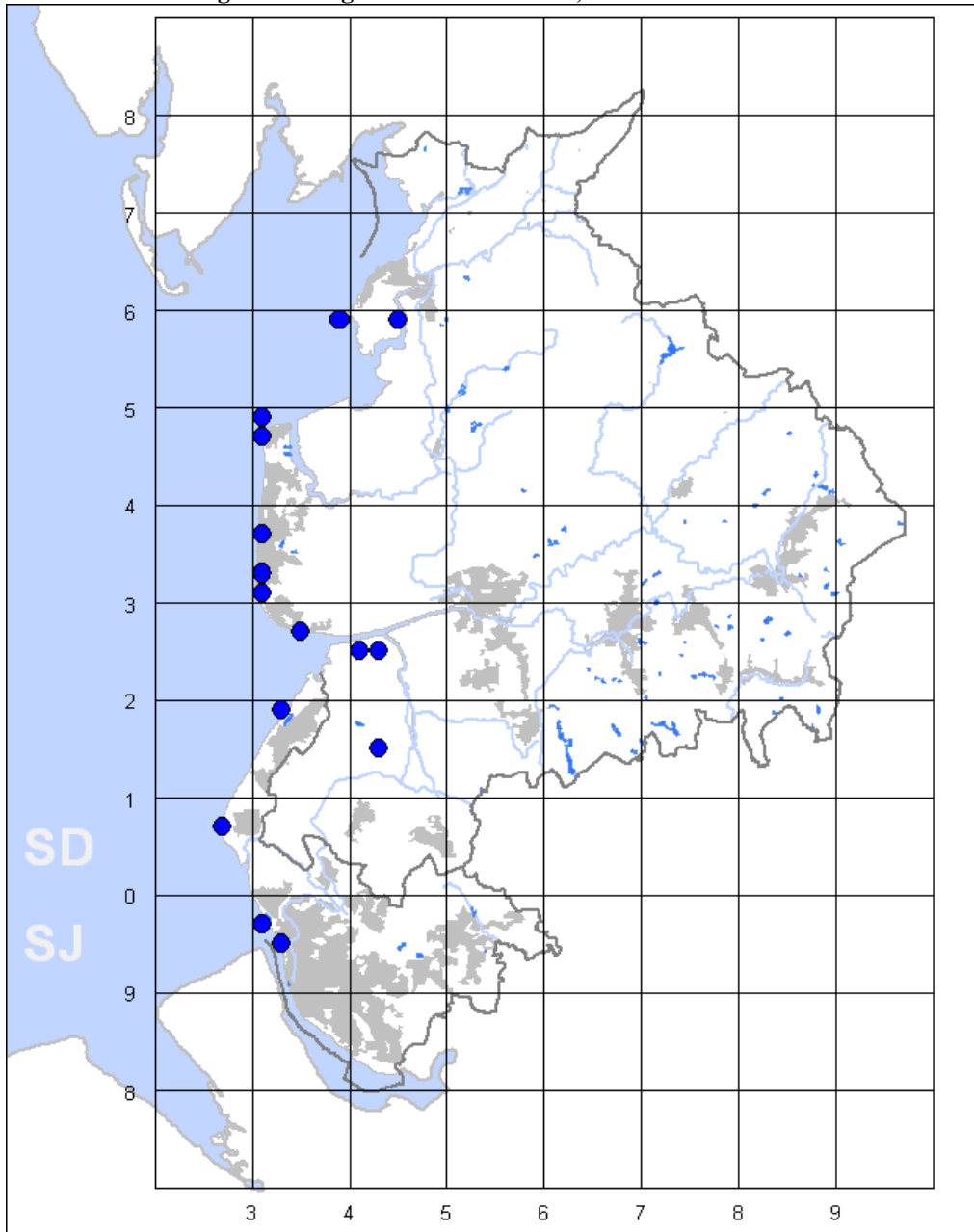
Birds were recorded in 15 tetrads during 2007/08-2010/11 (Fig.1). All were on the coast or estuaries; inland records in the county are rare so one at Martin Mere in January 2008 was notable.

Although Heysham has had the lion's share of records in recent years, the largest counts during the survey were groups of four off Formby Point, Rossall Point and Blackpool.

The average winter total is probably around five individuals.

RJH

Figure 1. Shag: winter distribution, 2007/08-2010/11.

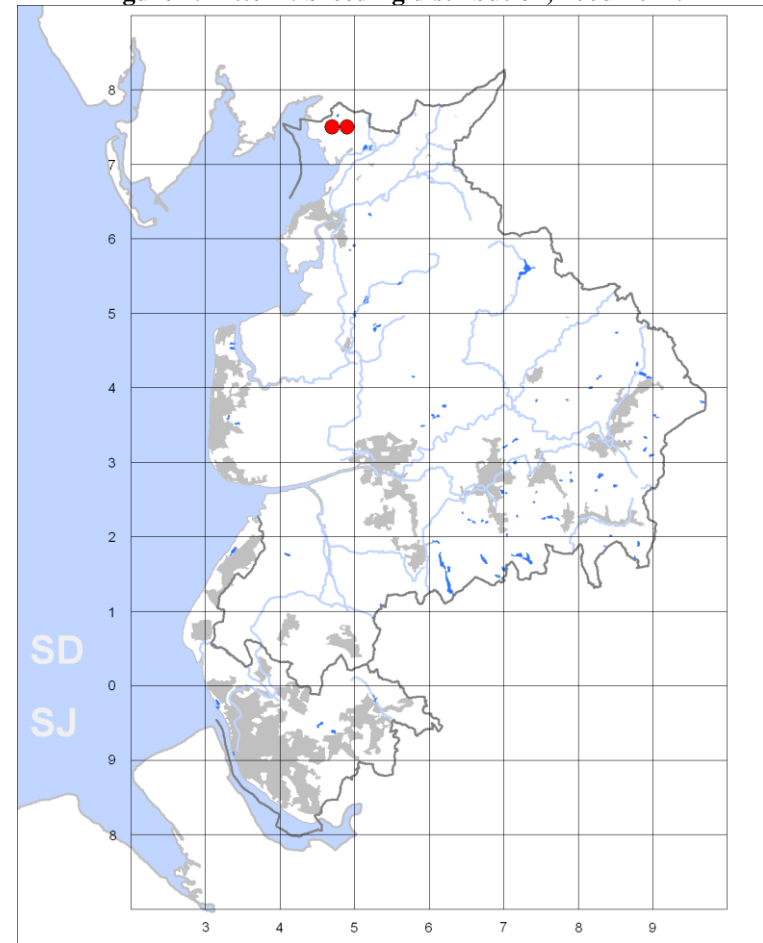


BITTERN *Botaurus stellaris*

Breeding

The sound of a male Bittern ‘booming’ in the Leighton Moss reedbeds has been one of the most distinctive sounds in the Lancashire countryside. Having recolonised the area in the middle of the twentieth century, numbers increased steadily to reach a peak of eight or so nesting females in the early 1980s. In the 1990s there were four booming birds but this fell to two at the turn of the century and just one since 2004.

Figure 1. Bittern: breeding distribution, 2008-2011.



The booming male recorded during the present survey may therefore have been a relatively old individual, and there were perhaps as few as two other birds on site in summer at any time during 2008-2011.

One female is thought to have nested unsuccessfully in 2009 when a second nest was suspected, but none has been recorded since. A single bird also summered at Haweswater during 2008.

Despite huge efforts by the RSPB to improve the quality of the habitat at Leighton Moss and to create other reedbeds in the area, these measures have so far failed to attract new breeding birds or to encourage wintering birds to stay. This has been particularly disappointing in the light of what has been a resurgence in the breeding population elsewhere in Britain, even on some fairly small sites, but it is too early yet to write Bitterns off as a breeding species in Lancashire.

Winter

Bitterns were recorded in 19 tetrads during 2007/08-2010/11 but, away from a handful of larger sites, many of these may have been transitory (Fig.2).

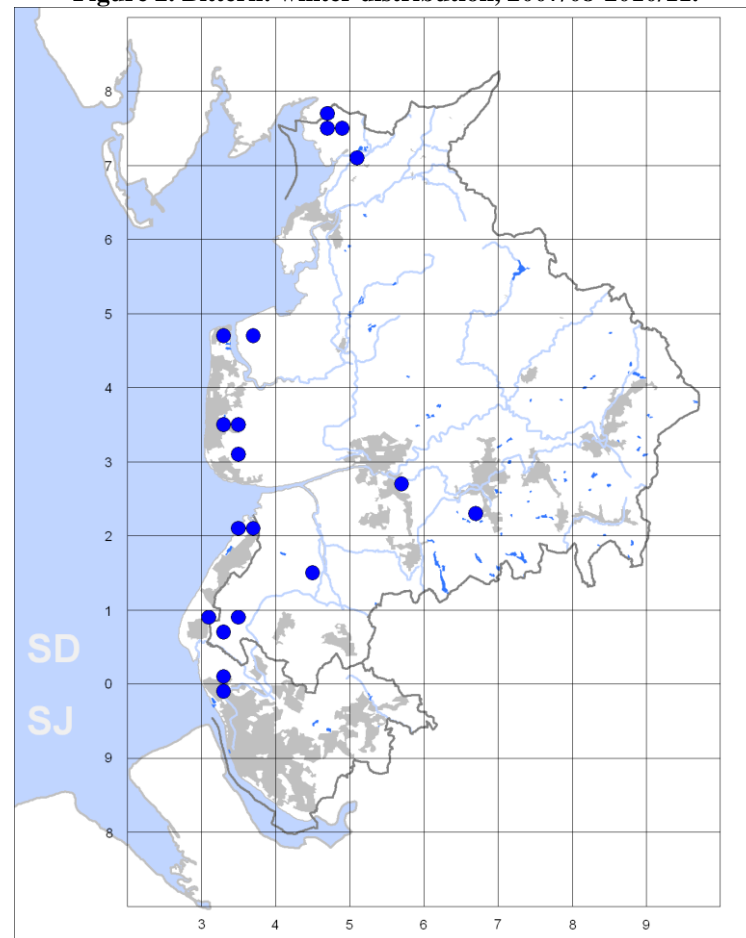
The typical pattern of records at Leighton Moss is that few are reported during winter but with six or more being seen leaving the site in a south-easterly direction in spring, having previously remained undetected.

The county's only other regular wintering site since the late 1980s has been Marton Mere. Peak numbers there rose from one or two to eight in 2002/03 and seven in 2003/4 before falling back again more recently to a maximum of three during the present survey. Starling roost predation is known to be a major factor in the popularity of this site for wintering Bitterns, with birds being counted towards dusk as they climbed the reed stems ready to feed on the unsuspecting arrivals.

Bitterns were found on a number of other sites, sometimes in small habitat patches, including Mere Sands Wood, Rimrose Valley, Downholland, Altcar and Lytham Mosses, Crossens Out Marsh, Formby Hall, Over Kellet, Preesall Flashes and Fleetwood Marsh. They remain rare far inland; one was seen at Sunnyhurst Reservoir in November 2008, one was picked up in Bamber Bridge in February 2009 and subsequently rehabilitated and released at Leighton Moss, and one was at Mere Sands Wood in 2009/10. The average wintering population was estimated to be in the region of ten birds.

SD

Figure 2. Bittern: winter distribution, 2007/08-2010/11.



NIGHT HERON *Nycticorax nycticorax*

Night Herons are rare passage migrants in Lancashire with fewer than 20 documented records. Their secretive habitats make them more likely to be overlooked than other heron species, but on the other hand escapes have been known to occur in the recording area.

The single record was an adult seen at Mere Sands Wood on several dates between 12 February and 21 April 2008. This bird showed several characteristics of the North American race *hoactli*. As noted in the Lancashire Bird Report at the time this made escaped origin a very distinct probability,

but it is not entirely inconceivable that it could have crossed the Atlantic in a previous autumn and remained undetected for several months.

SD

CATTLE EGRET *Bubulcus ibis*

After one at Martin Mere in December 2007 Lancashire had its due share of a record influx into Britain in 2008 and 2009 but none subsequently.

Throughout the atlas period there was a total of eleven records involving 14 birds. With the exception of the 2007 record at Martin Mere, all were seen during the summer months or during migration periods – at Eccleston in St. Helens, Marshside, Downholland Moss, Bescar, Leighton Moss, Preesall, Fleetwood, Woodvale and Plex Moss, Cockerham and Belmont Reservoir.

SD

LITTLE EGRET *Egretta garzetta*

The 1997-2000 Lancashire atlas included Little Egret in the ‘additional species’ with the suggestion that ‘it may not be too long before Little Egrets attempt to breed in the county’. In one sense this proved to be accurate, as a female did have what was thought to be an infertile clutch at a Fylde site soon afterwards. However, the striking fact over a decade later is that the Little Egret has still not nested successfully in the county despite increasing numbers of non-breeding visitors and breeding now regular in neighbouring counties.

Although colonisation has not yet occurred, Little Egrets have become increasingly numerous as a passage migrant, winter visitor and during post-breeding dispersal. The largest counts come from roost sites (Fig.1).

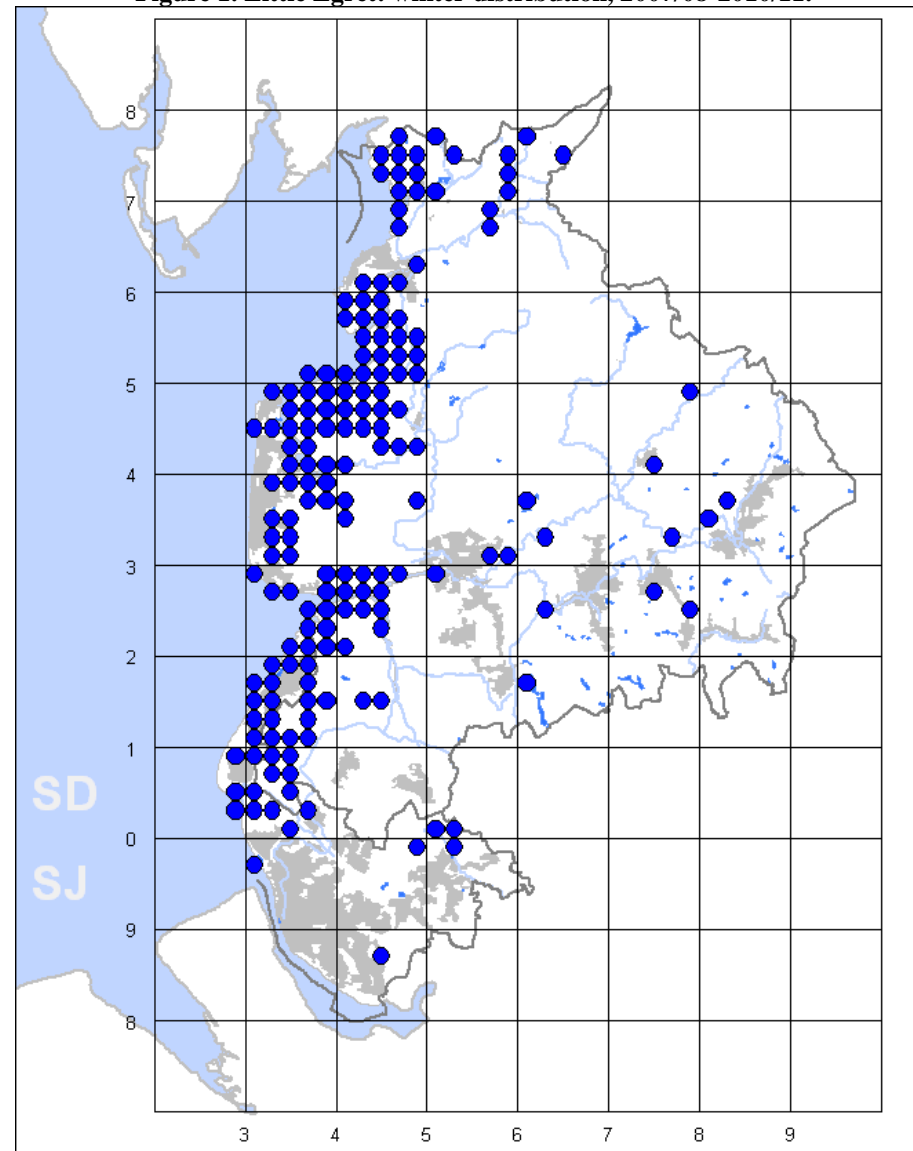
Figure 1. Peak counts at main roost sites

	2006	2007	2008	2009	2010	2011
Freckleton	18	43	87	62	108	35
Leighton	9	28	48	63	127	118

Counts at Freckleton have been less regular in the last couple of years and it is unclear to what extent birds have switched to Southport Marine Lake as an alternative roost site. As the species has moved northward Leighton Moss has apparently replaced the Ribble as the main site. However, the

growth in numbers has been checked in recent years, possibly as a result of two hard winters discouraging the northward spread of the English breeding population.

Figure 1. Little Egret: winter distribution, 2007/08-2010/11.



Little Egrets were recorded in 170 tetrads, 18% of the total, during 2007/08-2010/11 (Fig.1) . Twenty-five were in the eastern half of the county, favouring river valleys, particularly the Lune and the Ribble. The remainder were on the coast or inland wetlands.

Time will tell whether numbers will continue to increase or whether saturation point has been reached; and, setting up another hostage to fortune, the first confirmed breeding record is presumably not too far away.

SD

GREAT WHITE EGRET *Egretta alba*

The Great White Egret has followed its smaller relative, the Little Egret, in becoming an established visitor to Britain. The species was removed from the list of national rarities in 2006 and in 2012 the first nesting occurred in Somerset. A recent *British Birds* paper on the colonisation suggested that many birds were arriving from the prospering Dutch and French Mediterranean coast populations. The national peak totals this century increased from an average of around 15 to around 165 in 2009; in this context the number of records in Lancashire has been surprisingly high.

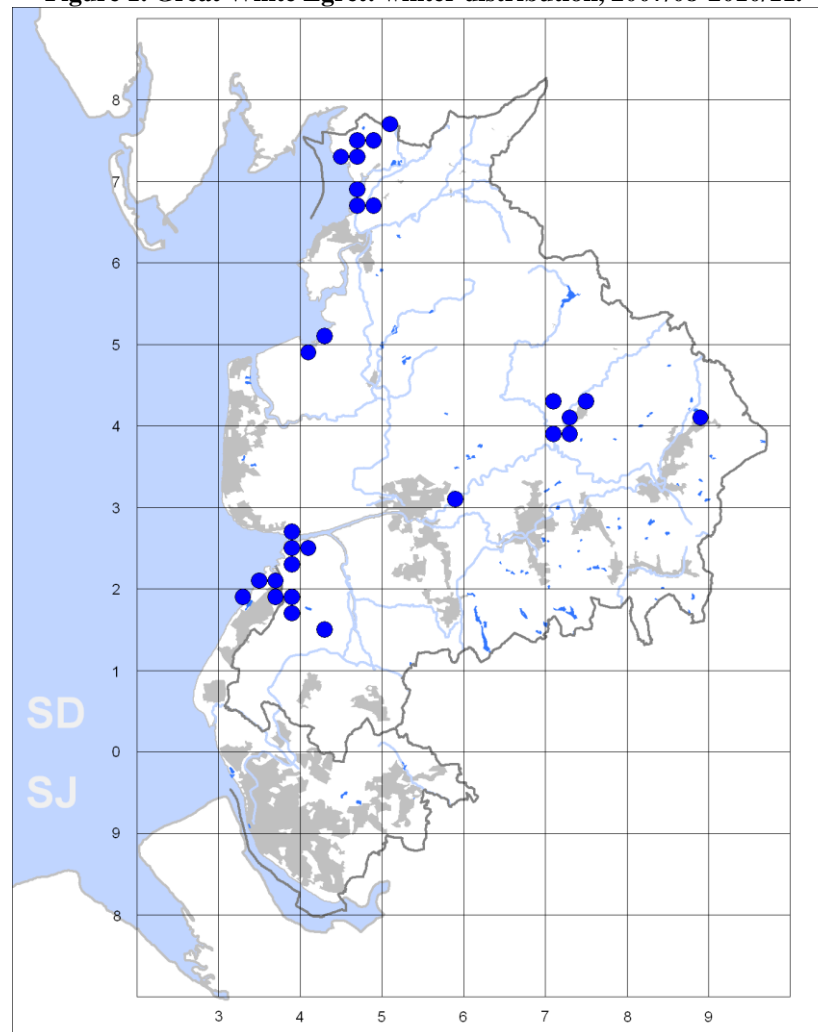
The first county record was at Marshside in October 2001 and there were still only seven records up to 2005 when the county avifauna was published.

Although the 28 tetrads shown on the wintering map (Fig.1) include several roaming individuals, there was also a clear increase during 2007/08-2010/11.

In 2009, for instance, there were up to three roosting at Leighton Moss in the autumn and there was a minimum of five birds in the county. Subsequently numbers have dropped back slightly but in most years there have a couple of birds on the Ribble Estuary and at least one in north Lancashire. Inland records are rare, despite the number of mapped tetrads which mostly relate to one individual in the Clitheroe area in November 2010. The average wintering population can be assessed with some certainty at 3-5 birds.

SD

Figure 1. Great White Egret: winter distribution, 2007/08-2010/11.



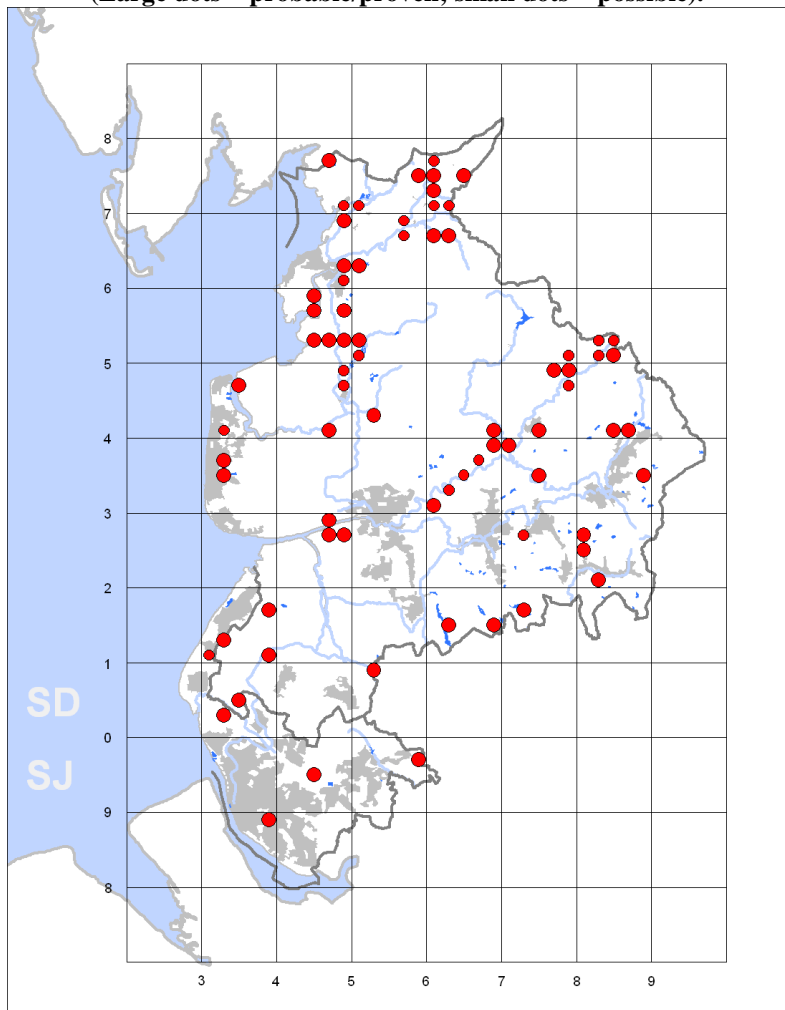
GREY HERON *Ardea cinerea*

Breeding

Nesting Grey Herons were located in 48 tetrads during 2008-2011, 55% more than in 1997-2000 (Fig.1). These heronries were spread fairly widely throughout the county wherever suitable woodland breeding, and wetland

feeding, habitats were available. Birds were seen in a total of 508 tetrads during the summer months, giving an indication of just how large their foraging range can be.

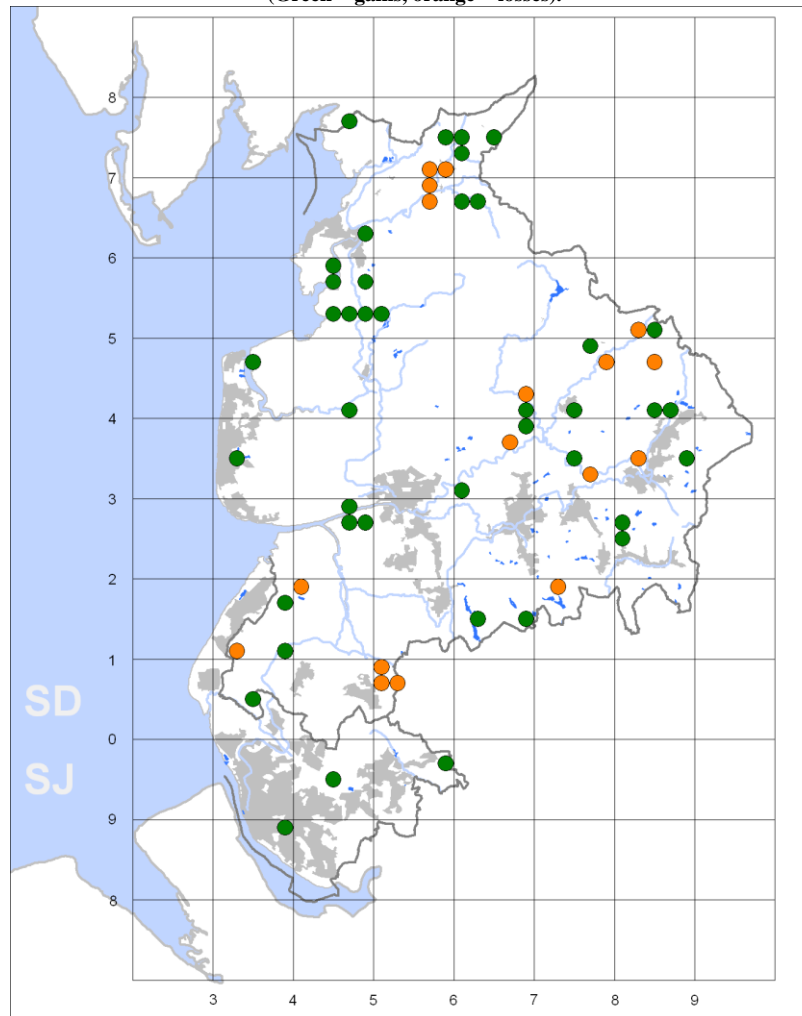
Figure 1. Grey Heron: breeding distribution, 2008-2011.
(Large dots = probable/proven; small dots = possible).



The breeding change map adds to this very positive picture, showing apparently new heronries in 39 tetrads compared with losses in 17 (Fig.2). Given that each of these could involve a heronry of several pairs, at a superficial level it appears that Grey Herons are flourishing in Lancashire.

However, things are not necessarily that straightforward. The growth in the number of heronries has to some extent been offset by reductions in colony size. The Cloughton-on-Brock heronry held 127 pairs at its peak but recently there has been no heronry anywhere in the county approaching this size. As recently as 2006 there were still three heronries with over 40 pairs, the declining Cloughton and the increasing Entwistle and Stanley Park sites, but by 2011 the largest was at Winckley Hall with just 25 pairs.

Figure 2. Grey Heron: changes in breeding distribution, 1997-2000 to 2008-2011.
(Green = gains, orange = losses).



Nest counts from 28 heronries suggest an average size of 16 pairs. Scaled up this implies a county population of close to 750 pairs but, since it appears that rather more larger than smaller heronries were counted, this may be on the high side and 500 pairs may be closer to the truth; this would represent around 4% of the British population.

These results appear to go against the national picture. The BTO Heronry Survey indicated that the population fell from a peak of 14250 apparently occupied nests in 2001 to below 12000 in 2011, while BBS data for north-west England show the population increasing up to 2007 before declining with a net 13% drop between 1995 and 2010. It has been suggested that a generally upward trend had developed into a shallow slide that has been exacerbated by recent hard winters. The county avifauna noted that up to 2005 the Lancashire population had not increased in line with national trends but our current survey suggests the opposite may have been the case.

Winter

Birds were recorded in 626 tetrads in winter, compared with 508 in summer, reflecting some dispersal as birds are less tied to nesting areas (Fig.3). Some of the gaps in distribution appear partly to be due to coverage issues, for example along the Wyre near Garstang, but most absences were on the eastern moorlands and some of the densely populated areas, Liverpool in particular.

There was no clear pattern to the sites holding the largest wintering numbers (Fig.4), although most were close to breeding sites (and may have actually included birds breeding in February). Counts of 20 or more were recorded in eight tetrads, the largest being 55 at Brockholes, while the largest away from breeding sites were 25 at Seaforth and 21 at Southport Marine Lake. The winter population was estimated at 1250 individuals.

SD

Figure 3. Grey Heron: winter distribution, 2007/08-2010/11.

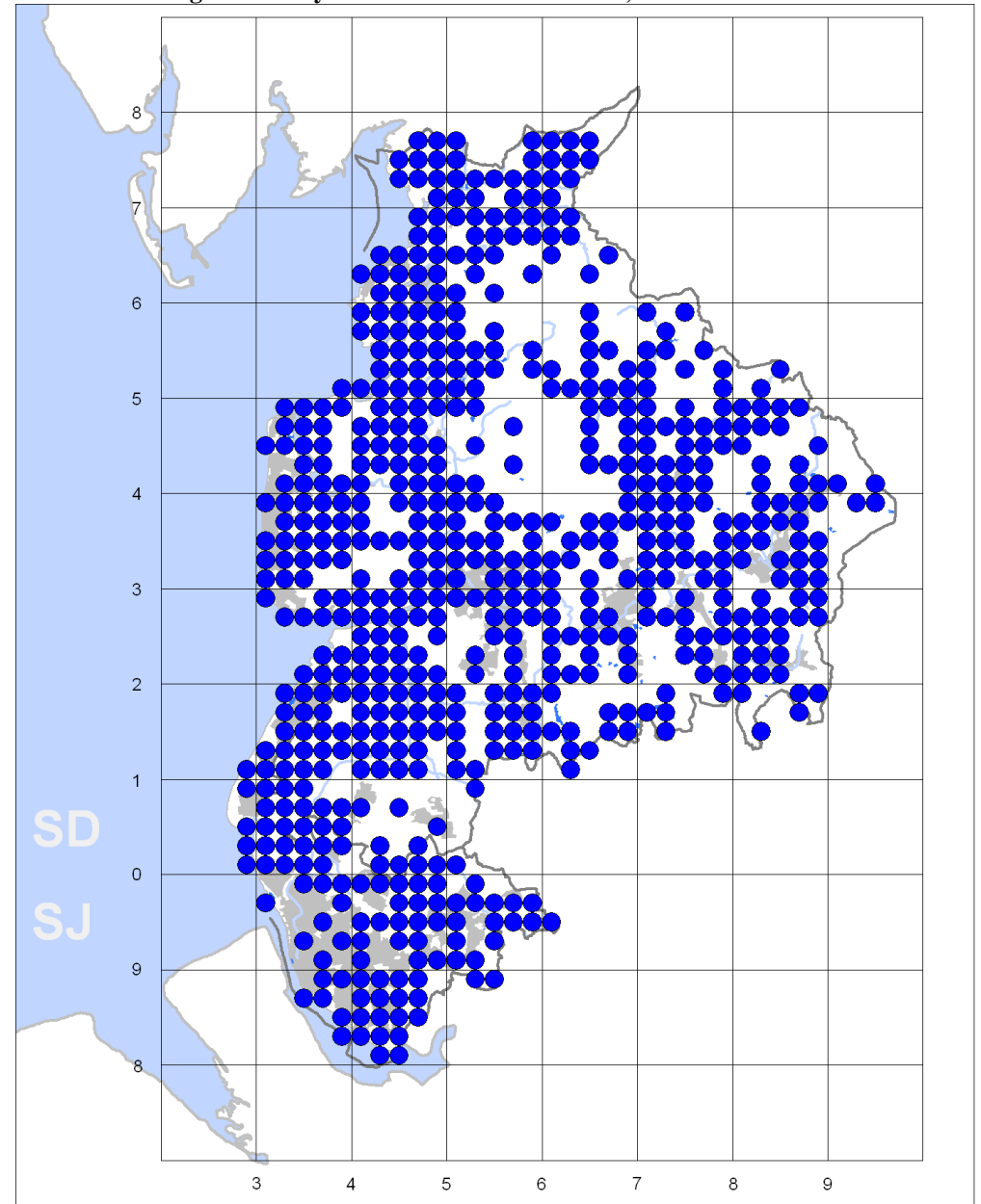
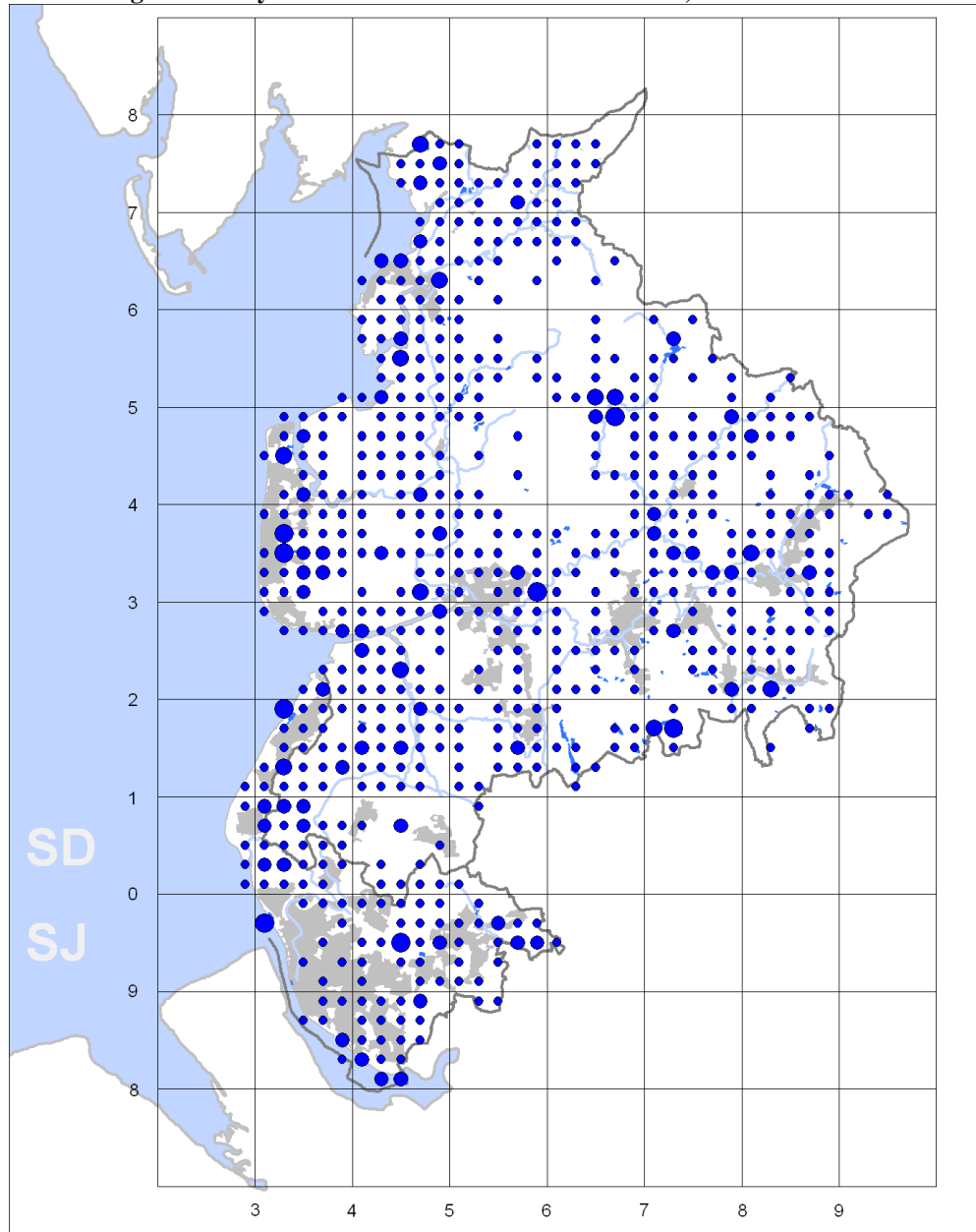


Figure 4. Grey Heron: relative abundance in winter, 2007/08-2010/11.



Dot size in descending order: 20-55; 10-19; 5-9; 1-4

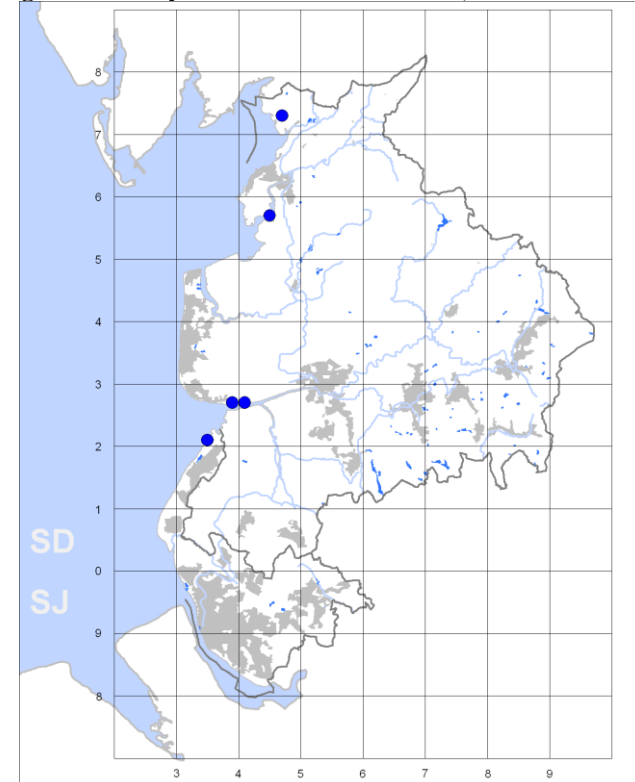
GLOSSY IBIS *Plegadis falcinellus*

When two Glossy Ibises roosted on Pilling Sands for several days in April 1997, the first Lancashire records for 80 years, there was a real element of surprise. Since then, along with the three egret species recorded in Britain, the Glossy Ibis has become more regular nationally, finally being dropped as a BBRC rarity at the end of 2012. Further records, whilst still very notable, were therefore to be expected.

The seventh for Lancashire was first seen at Martin Mere on 20 September 2006, having previously been tracked through Dorset, Derbyshire and Staffordshire. The last definite record of this bird appears to have been on the Ribble Estuary in early 2008. In between it was seen at a number of Lancashire sites as it appeared to try to move on (Fig.1), venturing into Yorkshire and Cheshire on occasions.

SD

Figure 1. Glossy Ibis: winter distribution, 2007/08-2010/11.



WHITE STORK *Ciconia ciconia*

A free-flying bird from the collection at Harewood House in West Yorkshire was seen during the breeding season throughout the survey period, mostly in east and central Lancashire and the Fylde.

SJW

SPOONBILL *Platalea leucorodia*

Birds were recorded in at least a dozen tetrads in the breeding season during 2008, 2009 and 2010; most were singles but there were up to five in the Leighton Moss area in 2008.

All were either migrants or summering without showing any inclination to breed. Spoonbill therefore counts as a species that has 'become extinct' since the 1997-2000 survey as a pair bred on Banks Marsh in 1999. However, that now appears to have been strictly a one-off and it may take some considerable time before they expand beyond their current breeding area in East Anglia to nest again in Lancashire.

SJW

LITTLE GREBE *Tachybaptus ruficollis*

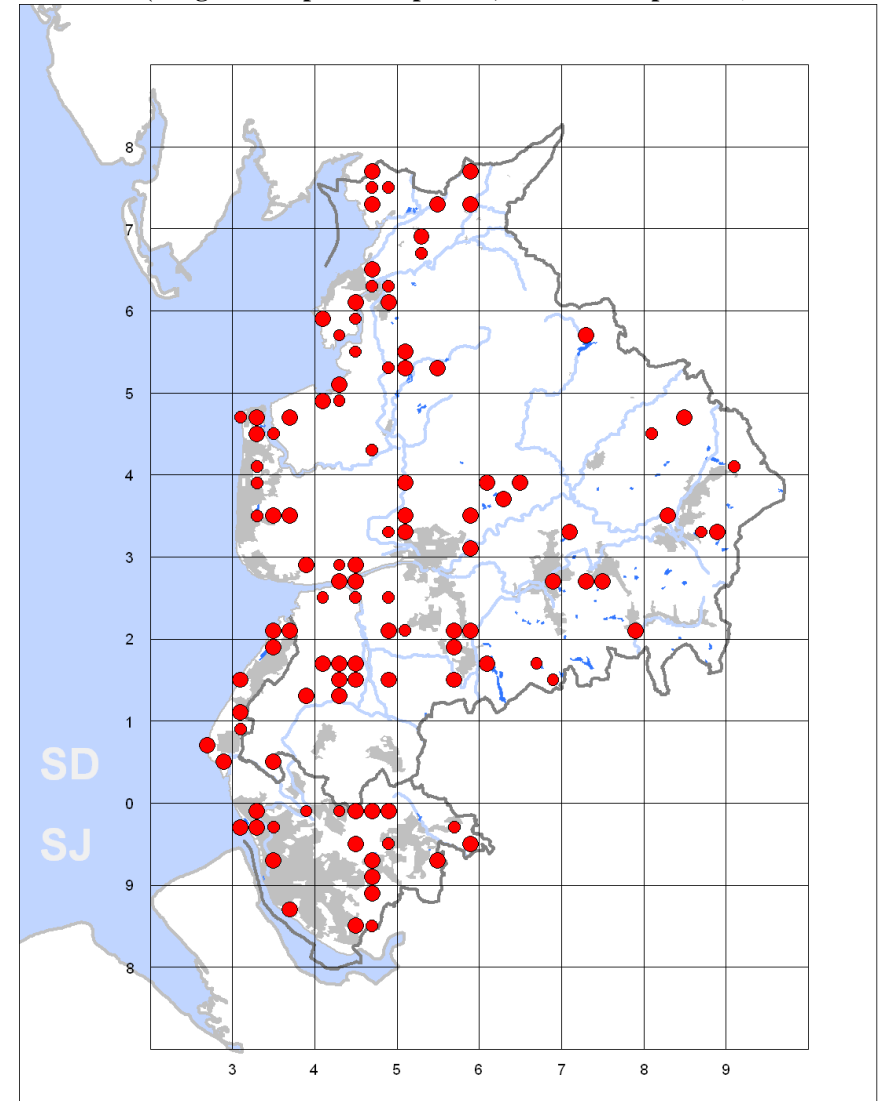
Breeding

Little Grebes are a difficult species to monitor and the published national population trends are somewhat ambiguous, but it seems that they are flourishing in Lancashire.

Breeding was thought at least probable in 78 tetrads during 2008-2011, a rise of 37% since 1997-2000; nesting was thought possible in a further 34 tetrads (Fig.1). The species was distributed on mainly small still-water bodies throughout the county and was absent only where suitable habitat was lacking, principally in the uplands but also in central Fylde; reservoirs were largely avoided.

Figure 1. Little Grebe: breeding distribution, 2008-2011.

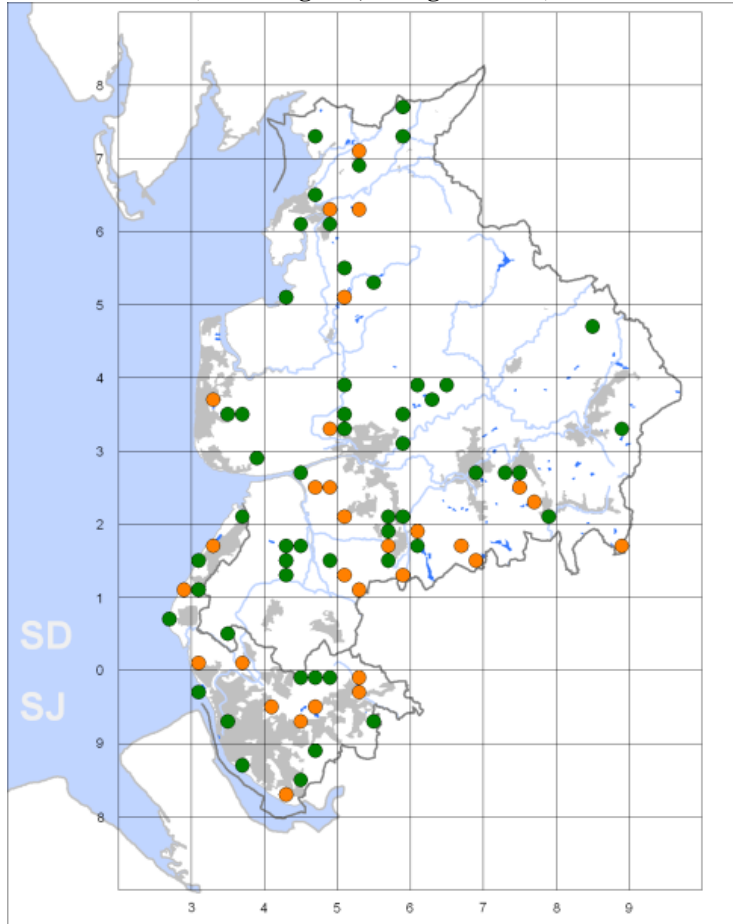
(Large dots = probable/proven; small dots = possible)



The species' status had changed in a relatively large number of tetrads, although the number of newly-occupied tetrads far outnumbered those that appeared to have been abandoned since 2000 (Fig.2). There were small clusters of gains in St. Helens, West Lancashire and to the north of Preston, but with net gains generally higher north of the Ribble. Losses in the south

showed no definite pattern but appeared to be associated to some extent with urban fringe areas, perhaps due to habitat deterioration or increased levels of disturbance.

Figure 2. Little Grebe: changes in breeding distribution, 2008-2011.
(Green = gains; orange = losses)

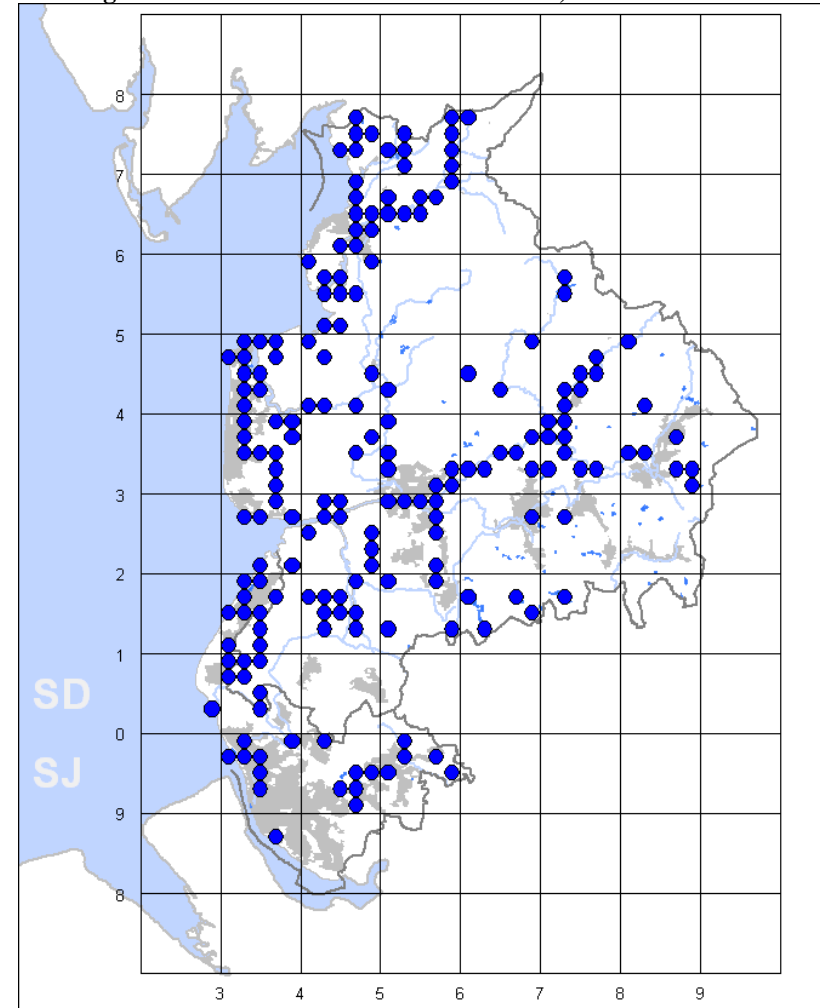


Average density in tetrads where breeding was at least probable was estimated at 1.5 pairs, suggesting a county population of 135 pairs, a little over 1% of the British total.

Winter

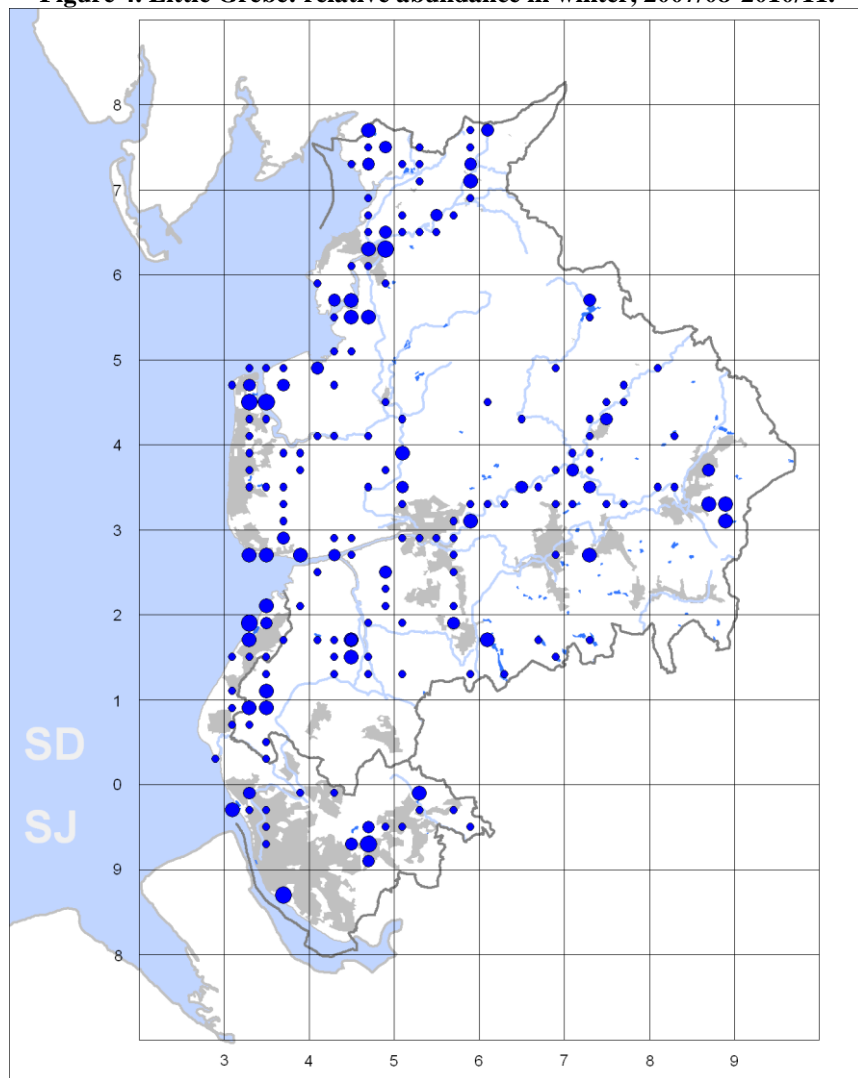
Little Grebes regularly disperse from their breeding sites, especially during harsh winters as the small water bodies they frequent are very prone to freezing over. Thus they are much more likely to be transient in winter, turning up in unlikely places and remaining on running water for long periods of time. They are quite different to their larger cousins, Great Crested Grebes, in that they do not generally frequent coastal waters; indeed, none was recorded at sea during the atlas period.

Figure 3. Little Grebe: winter distribution, 2007/08-2010/11.



Little Grebes were present in 186 tetrads, more than twice as many as in summer and 20% of the county total (Fig.3). Their distribution was strikingly different to that of the breeding season with birds present on most rivers and marked concentrations on the Ribble and Lune as well as coastal and urban lagoons and lakes.

Figure 4. Little Grebe: relative abundance in winter, 2007/08-2010/11.



Dot size in descending order: 15-26; 5-14; 3-5; 1-2

They are, however, not particularly gregarious. Most peak counts were in low single figures and counts of ten or more were recorded in only ten tetrads, including 26 at Prescott Reservoirs and Fleetwood ICI Pools, 21 on Southport Marine Lake and 17 on the Lune at Skerton Weir (Fig.4).

The county population was estimated at 350 individuals, roughly 2% of the British population.

RJH

GREAT CRESTED GREBE *Podiceps cristatus*

Breeding

Great Crested Grebes made a strong recovery during the twentieth century after earlier persecution, helped by the creation of large numbers of gravel pits and reservoirs; unlike Little Grebes, Great Crested Grebes tend to favour large water bodies as nesting sites. Their expansion nationally has continued, showing a 9% increase in the breeding population during 1995-2010, and the results of the 2008-2011 survey appear to indicate that this trend has continued in Lancashire during this century.

Birds were found in suitable breeding habitat in 97 tetrads and thought to be probably or definitely breeding in 81 of these, indicating a 23% increase in range since the 1997-2000 survey (Fig.1).

However, the total number of tetrads occupied, including 'possibles', changed very little between the two surveys (93 tetrads in 1997-2000), suggesting that their range has remained stable, or has only slightly increased. On this measure there was a very large distributional shift with 41 tetrads newly occupied and 37 apparently abandoned (Fig.2).

To some extent this may have been the result of mapping differences, as some breeding sites straddle more than one tetrad, but probably more important have been subtle habitat changes.

Birds were distributed throughout the county wherever suitable habitat existed, with discernable clusters on the reservoirs of the West Pennine Moors and the north Lancashire gravel pits; they were also found in many urban areas (with the notable exception of Southport), including park lakes.

Most sites supported just one or two pairs but there were some larger concentrations; St. Helens and Knowsley stand out, with Carr Mill Dam, Eccleston Mere, Sankey Valley Park and Knowsley Park/Prescot Reservoirs

amongst the best sites in the county, joined elsewhere by Mere Sands Wood, Scorton and Foulridge Reservoirs.

The county population was estimated at 150 pairs, roughly 3% of the British population and a small increase on the 140 pairs estimated in 1997-2000.

Figure 1. Great Crested Grebe: breeding distribution, 2008-2011.
(Large dots = probable/proven; small dots = possible)

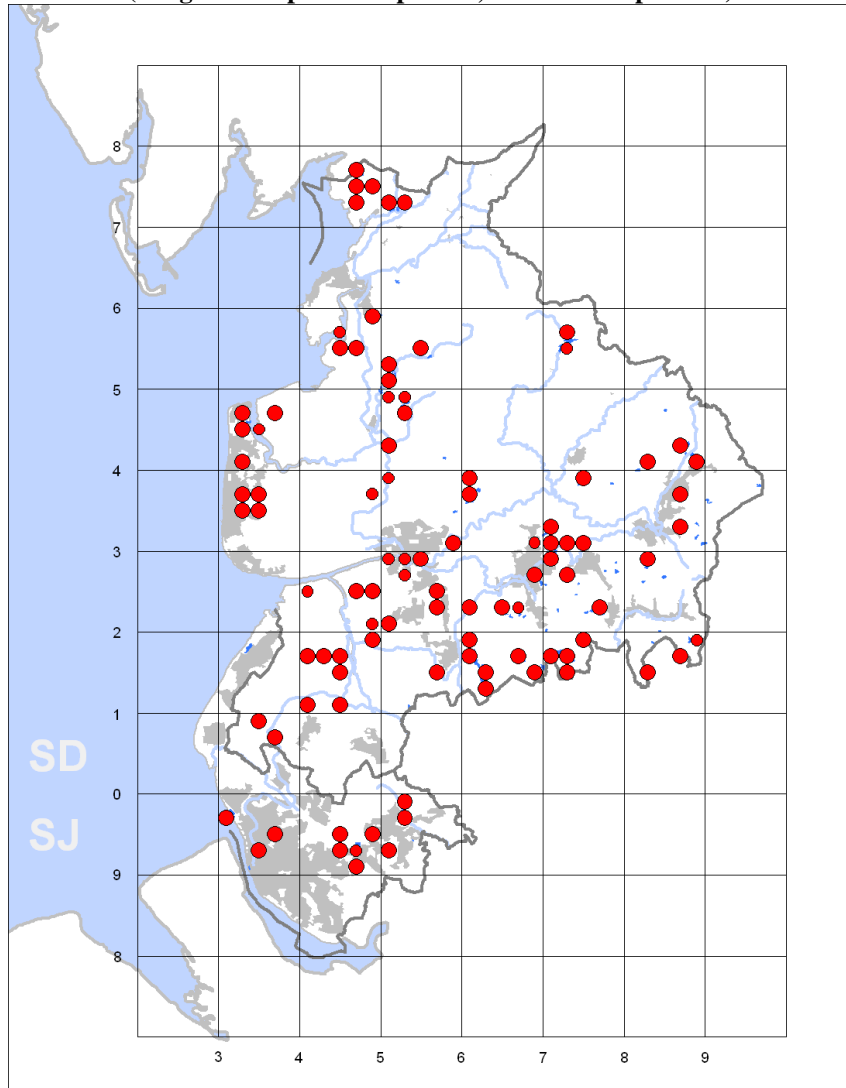
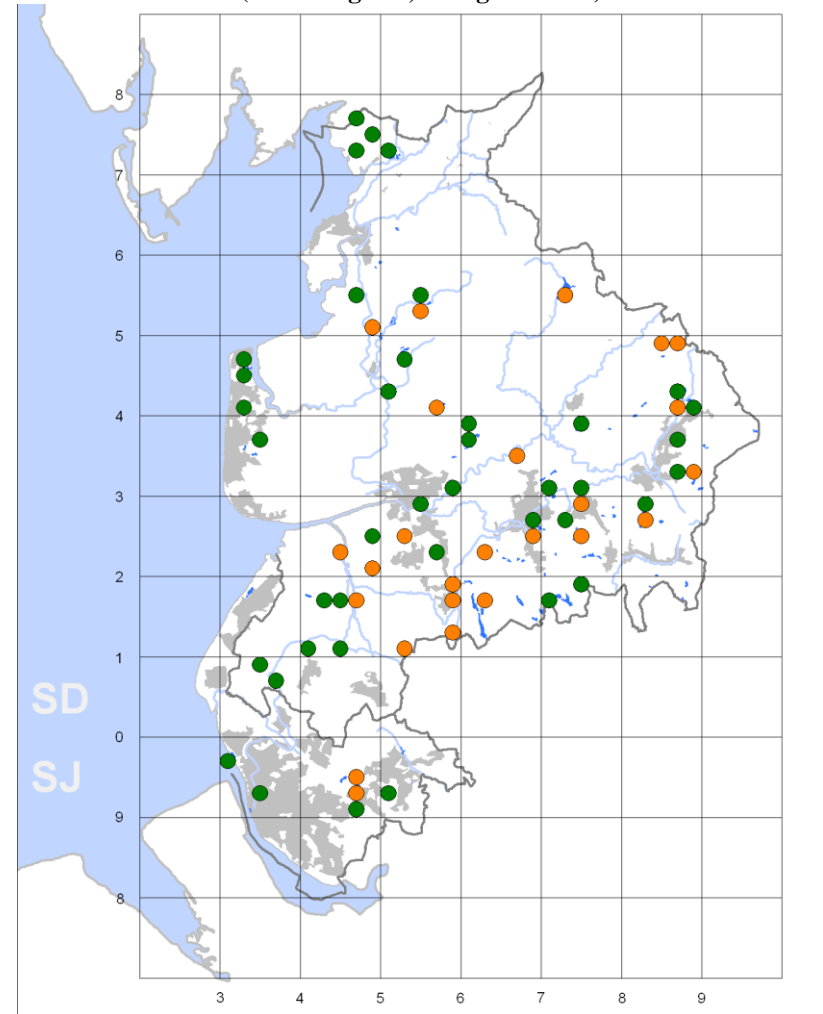


Figure 2. Great Crested Grebe: changes in breeding distribution, 2008-2011.
(Green = gains; orange = losses)



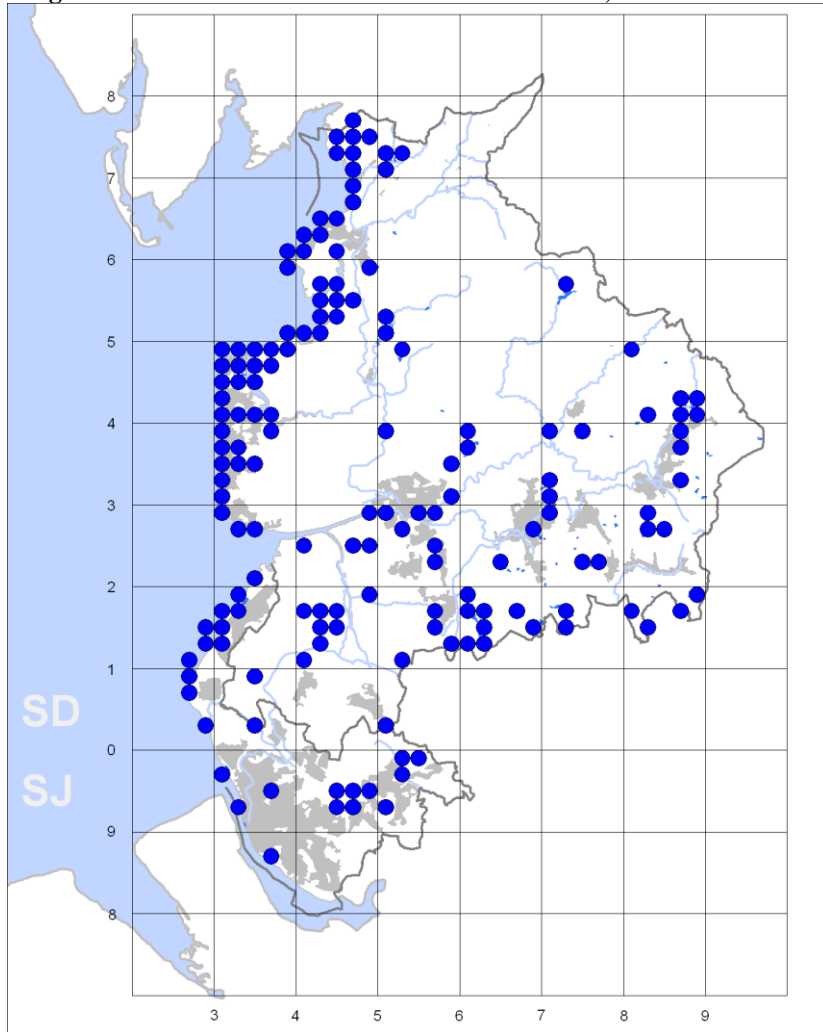
Winter

Great Crested Grebes were found in 154 tetrads during 2007/08-2010/11, more than twice the number of the breeding season and including 16% of all tetrads in the county (Fig.3).

Around a third of these records were on or near the coast but inland many of the same sites were occupied as in the breeding season, where birds

often defend breeding territories vigorously throughout the winter, only abandoning them during freezing conditions.

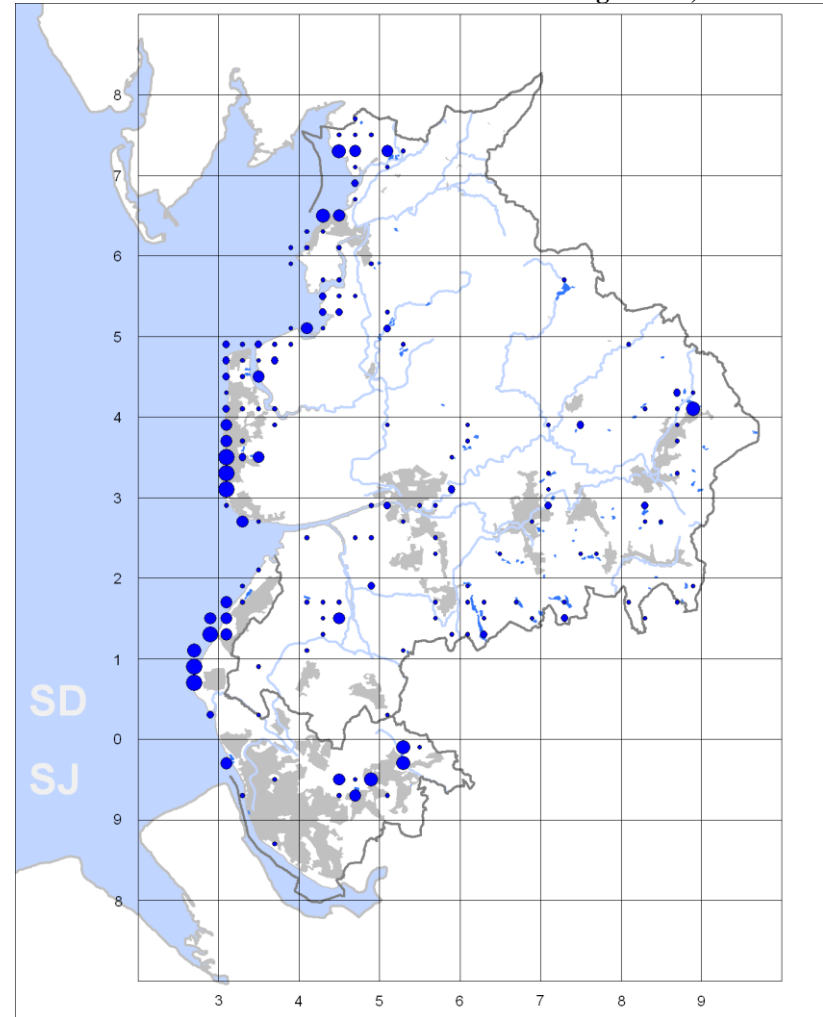
Figure 3. Great Crested Grebe: winter distribution, 2007/08-2010/11.



Typically, birds move to the coast in winter to escape ice and difficult feeding conditions, but with the trend for warmer winters this movement may not be as pronounced. Indeed, coastal counts have been in decline for some years in Lancashire.

Numbers remained higher offshore than on inland waters but this difference was probably exaggerated by duplication of counts within and between winters on the coast (Fig.4).

Figure 4. Great Crested Grebe: relative abundance during winter, 2007/08-2010/11.



Dot size in descending order: 50-100; 20-49; 10-19; 5-9; 1-4.

The long-standing population wintering in Morecambe Bay appears largely to have disappeared, with a highest total of just 39 recorded by WeBS during the atlas period. The largest coastal counts were 128 off Formby Point and 65 off Blackpool.

Fourteen tetrads recorded peaks of 20 or more. Five of these were inland, at Knowsley Park/Prescot Reservoirs, Sankey Valley, Eccleston Mere, and Foulridge Reservoirs, with the largest count 38 at Carr Mill Dam.

The county population was estimated at 400 birds, roughly 2% of the British population.

RJH

RED-NECKED GREBE *Podiceps grisegena*

One on Fairhaven Lake throughout January 2011 was the only winter record, although a migrant was at Brockholes in May 2009.

SJW

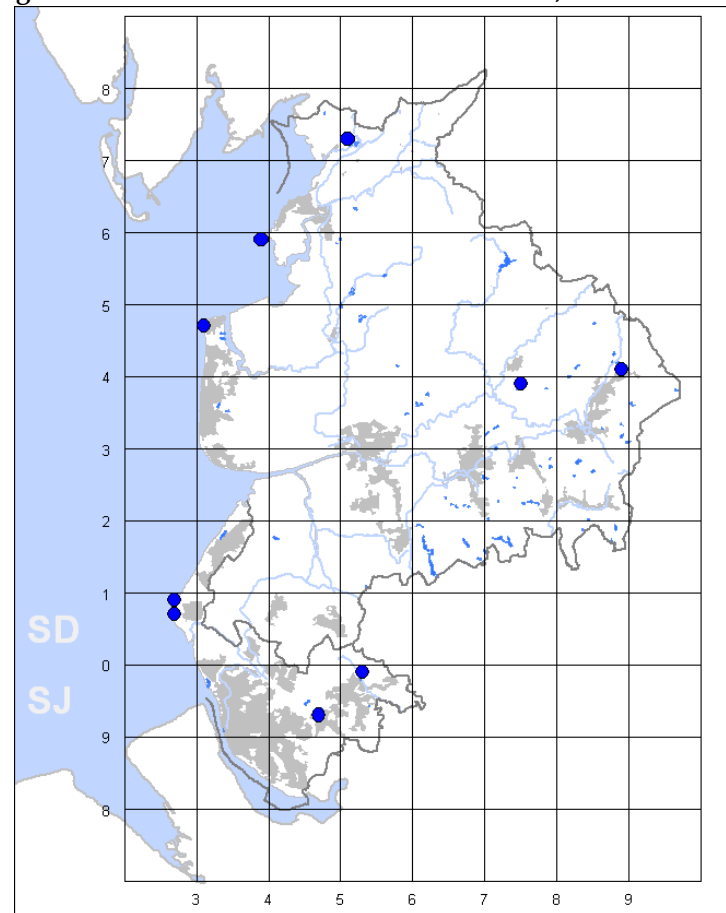
SLAVONIAN GREBE *Podiceps auritus*

Although records of Slavonian Grebes in Lancashire have increased from roughly two a year in the 1960s to perhaps closer to five in recent years it seems likely that this is due more to an increased number of observers rather than any change in the species' status.

Birds were recorded in nine tetrads during 2007/08-2010/11 (Fig.1). All were singles and most were seen offshore: off Formby Point in December 2007 and January 2008, Ainsdale in February 2009, Rossall Point in November 2009 and Heysham in February 2011. Inland records, again all singles, came from Barrow Lodges and Foulridge Reservoirs (the same bird) in January and February 2009, Pine Lake from October to December 2009 and in November 2010, and Prescot Reservoirs in December 2009.

RJH

Figure 1. Slavonian Grebe: winter distribution, 2007/08-2010/11.



BLACK-NECKED GREBE *Podiceps nigricollis*

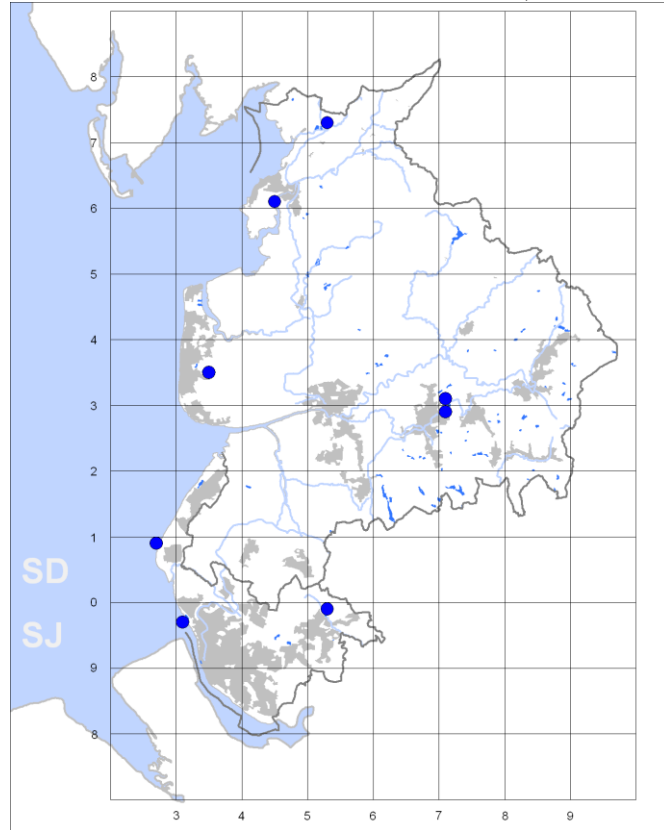
Although Black-necked Grebes have bred in neighbouring Cheshire and Greater Manchester for many years, there has never been any hint that they might colonise Lancashire. Records here are mainly of passage migrants, rather more commonly in spring than autumn, or perhaps birds dispersing from breeding sites in autumn or overshooting in spring.

Overwintering is a fairly rare occurrence. There were seven records during the 2007/08-2010/11 survey (Fig.1). Two of these, at Aldcliffe Marsh

and Dockacres in 2007, were in November but the remainder, singles at Marton Mere in December 2007, Carr Mill Dam in January 2009, off Formby Point in February 2009, at Rishton Reservoir in December 2009 and Seaforth in January 2010, were genuinely wintering birds.

RJH

Figure 1. Black-necked Grebe: winter distribution, 2007/08-2010/11.



RED KITE *Milvus milvus*

Summer

There is a spring passage of Red Kites in Lancashire in most years but sightings of more than one remain very much the exception. Some areas, particularly the Fylde, have been less favoured than others in the past but as records continue to climb this is becoming less clear-cut.

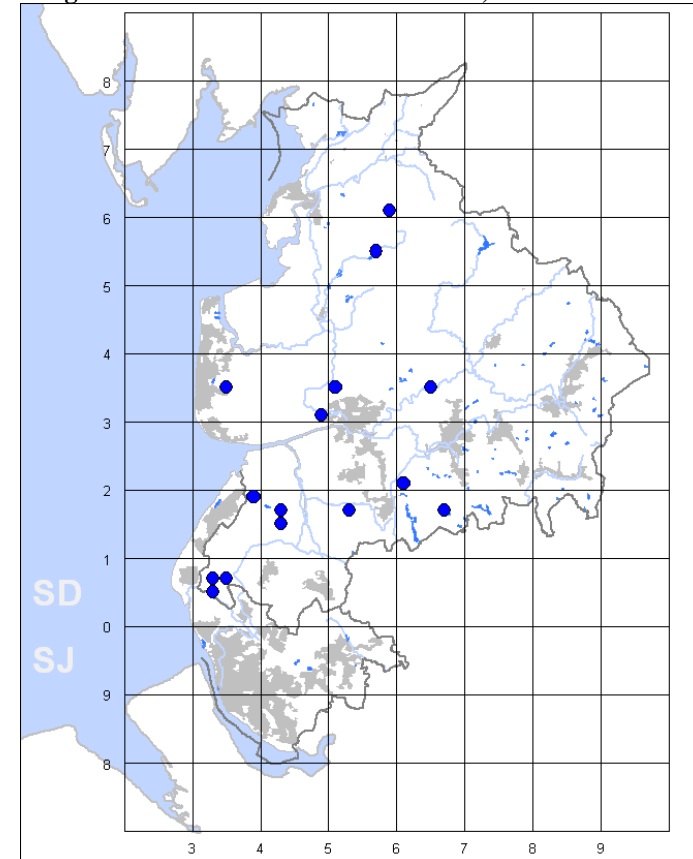
More than 100 were recorded in March to August during 2008-2011, all but one were singles and none lingered for more than a day or so.

There is no evidence of Red Kites having even attempted to breed in Lancashire following the various reintroduction schemes but, with a population now firmly established in West Yorkshire and birds introduced into Cumbria more recently, that cannot be far off.

Winter

The distribution map shows that birds were recorded in winter in 15 tetrads

Figure 1. Red Kite: winter distribution, 2007/08-2010/11.



during 2007/08-2010/11 (Fig.1). However, a large majority of these and the further ten or so that were reported to the county bird report were 'flyovers' with only a handful staying for any length of time.

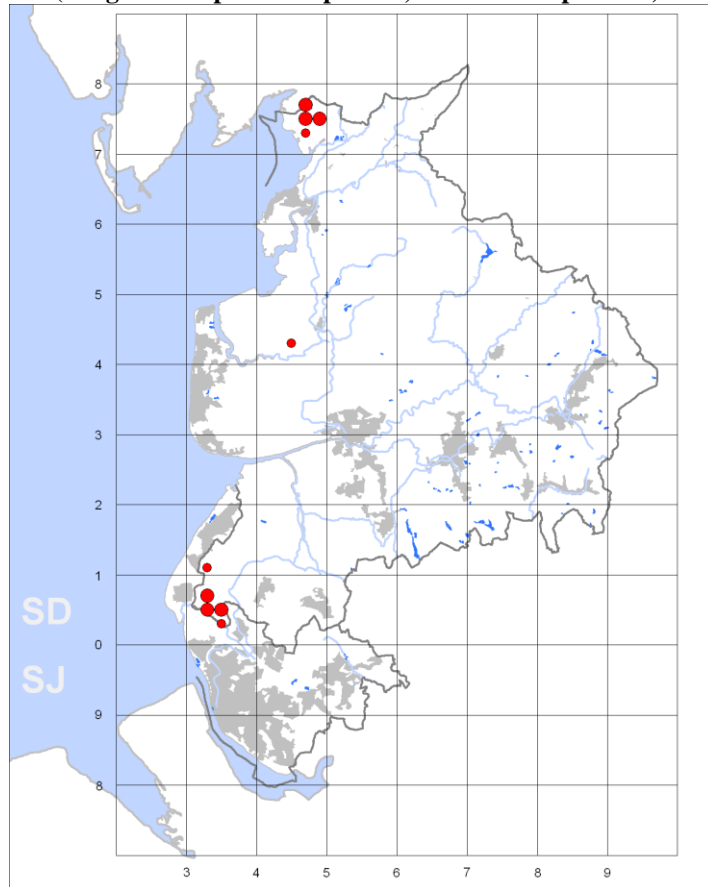
SD

MARSH HARRIER *Circus aeruginosus*

Breeding

After first successfully colonising Lancashire at Leighton Moss in 1987 breeding birds have flourished there but Marsh Harriers have been rather slow to spread as they have done elsewhere in the country.

Figure 1. Marsh Harrier: breeding distribution, 2008-2011.
(Large dots = probable/proven; small dots = possible).



At the time of the first Lancashire breeding atlas survey up to four females nested at Leighton Moss but it was not until 2001 that attempted breeding was confirmed on the south-west mosses, although it had been suspected for many years.

Nesting was confirmed in six tetrads during 2008-2011, three at Leighton Moss and nearby Haweswater and three in the south-west on the Formby mosses – the latter possibly involving a single female (Fig.1). The four possible breeding records probably mostly involved birds wandering from the main sites or non-breeding hangers-on, but the one in north Fylde was a summering female, perhaps prospecting for a nest site.

The maximum number of females known to have bred during the survey period was seven, five at Leighton Moss, one at Haweswater and one on the Formby mosses – a small number but it does represent 2% of the British population.

Winter

Initially the Marsh Harrier colonisation of Lancashire was purely as a summer visitor but, following the first record at Marshside in January 1995, there has been a steady increase in winter occurrences.

Having said that, the 28 tetrads in which birds were recorded rather overstates the actual level of occurrence as Marsh Harriers can be very mobile in winter. Most were seen on the Ribble marshes and sightings of multiple birds are more regular here than anywhere else in the county (Fig.2).

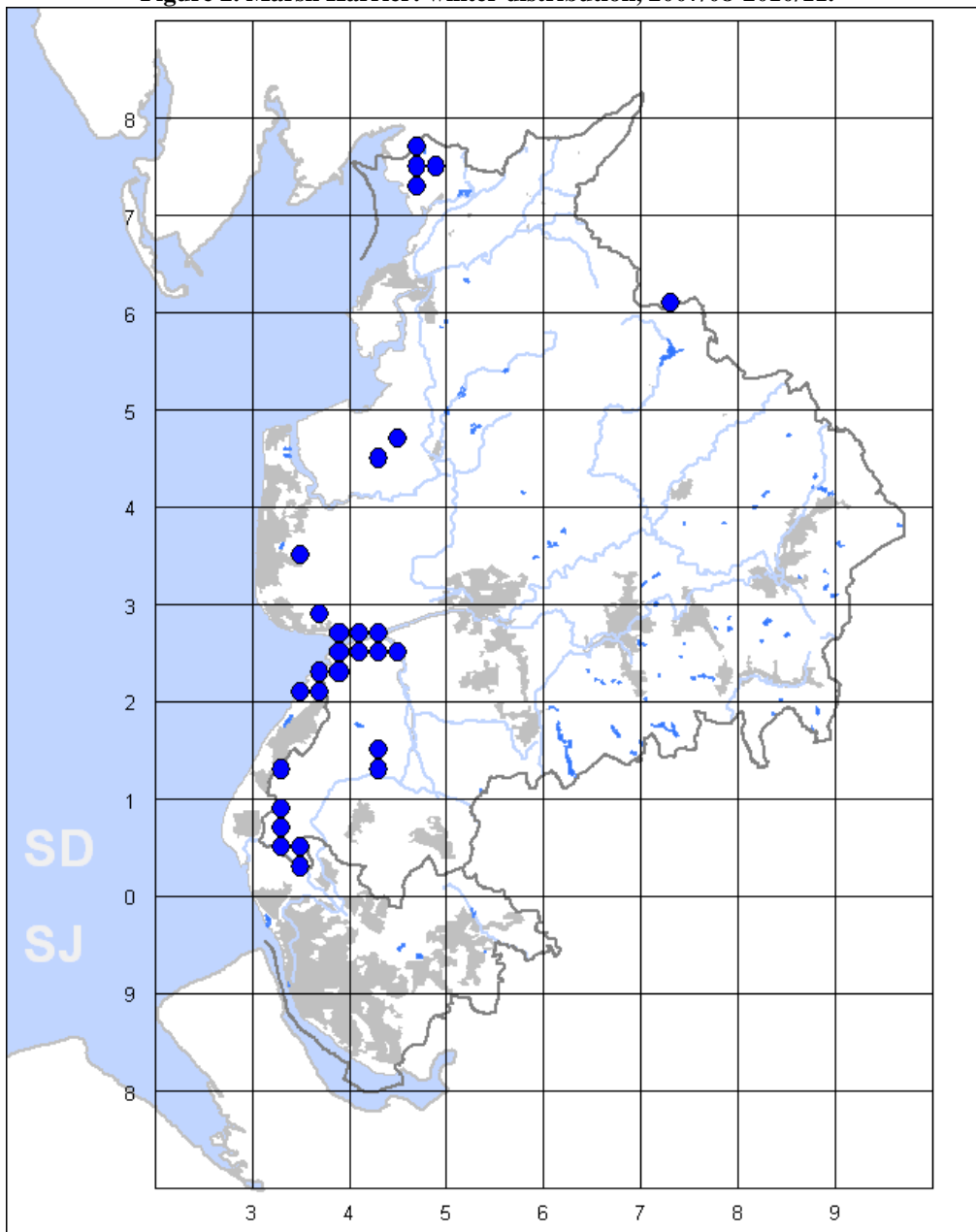
Wintering at Leighton Moss was slower to establish itself but is now also regular. There is also a pattern of some birds wintering in the vicinity of the nesting areas on the south-west mosses.

Other records presumably relate to late passage migrants or birds that were moving between the main wintering sites; the species is recorded much more frequently on passage and particularly in the autumn.

The average number seen during 2007/08-2010/11 was five, so it is clear that the majority of the breeding population and their offspring leave the county in winter.

SD

Figure 2. Marsh Harrier: winter distribution, 2007/08-2010/11.



HEN HARRIER *Circus cyaneus*

Breeding

The results of our 2008-2011 survey painted a moderately optimistic picture of breeding Hen Harriers but sadly this was blown away – probably quite literally! – in 2012 when none bred in Bowland and the species faced imminent extinction at this, its most important breeding site in England.

Birds were confirmed as breeding in eight tetrads during the survey years with probable breeding (mostly sightings of displaying pairs) in a further seven and possible breeding in 18 tetrads.

The overwhelming majority of nesting attempts during 2008-2011 took place on the United Utilities Bowland estate: ten in 2008, seven in 2009, ten in 2010 and seven in 2011. Elsewhere in Bowland single pairs bred in 2008 and 2009.

All but three of the possible breeding records were also in Bowland and, given the intensive monitoring there, all these were presumably breeding birds on foraging trips or non-breeders. There were four possible breeding records away from Bowland, two on the West Pennine Moors, one in Rossendale and one in the Trawden area, all were of single birds and none suggested that breeding was attempted.

Winter

Hen Harriers were recorded in 104 tetrads during 2007/08-2010/11, more than half of them in upland areas, principally in Bowland and the West Pennine Moors. There were three other clusters of records, on the Ribble marshes, the south-west moors and around Leighton Moss, the remainder being scattered throughout the rest of the county.

It is impossible to disentangle the large number of duplicated records but the best guess at a population total was around 30 individuals.

SJW

GOSHAWK *Accipiter gentilis*

Breeding

The Goshawk continues to be something of an enigma among Lancashire breeding species. Identification issues remain a problem and it also appears to be the case that falconer's escapes, the source of the recolonisation in the last century, continue to some extent today. Nevertheless, it is possible to make

some tentative conclusions about the species' status in Lancashire, and the overall picture gives cause for cautious optimism.

Breeding was proven in three tetrads during 2008-2011, with possible breeding in a further ten. All tetrads in which Goshawks were recorded were in the east of the county, nine of them in the north-east, two in the south-east and one in the Ribble Valley. The equivalent figures in the 1997-2000 survey were five tetrads with proven breeding and six with possible breeding, suggesting that the population is at least stable, and possibly increasing somewhat.

The population was estimated at ten pairs, but this is very much a 'guesstimate'; whilst some sites are known to be used annually others may be much less regularly. Small as this population is, it represents some 2-4% of the British population. There is no shortage of potentially suitable habitat in the county, various human pressures, egg-collecting, gamekeeping control measures and potentially falconers seeking chicks, are almost certainly a bigger limitation on population growth.

Winter

Birds were recorded in 16 tetrads during 2007/08-2010/11, many of them at breeding sites or nearby upland areas. However, there were nine records in the south-west of the county, a pattern that has been documented for several years in the county bird reports. It is possible that some of these, particularly those near to a 'traditional' nesting site in Merseyside, may have related to missed breeding records, but perhaps most were falconers' escapes.

There are certainly no lowland sites that are known to be used on a regular basis winter after winter, as is the case for other upland breeding species that move to lower altitudes, such as Merlin and Hen Harrier.

Assuming the county's breeding birds remain close to nest sites, the winter population is perhaps around 25 birds.

SD

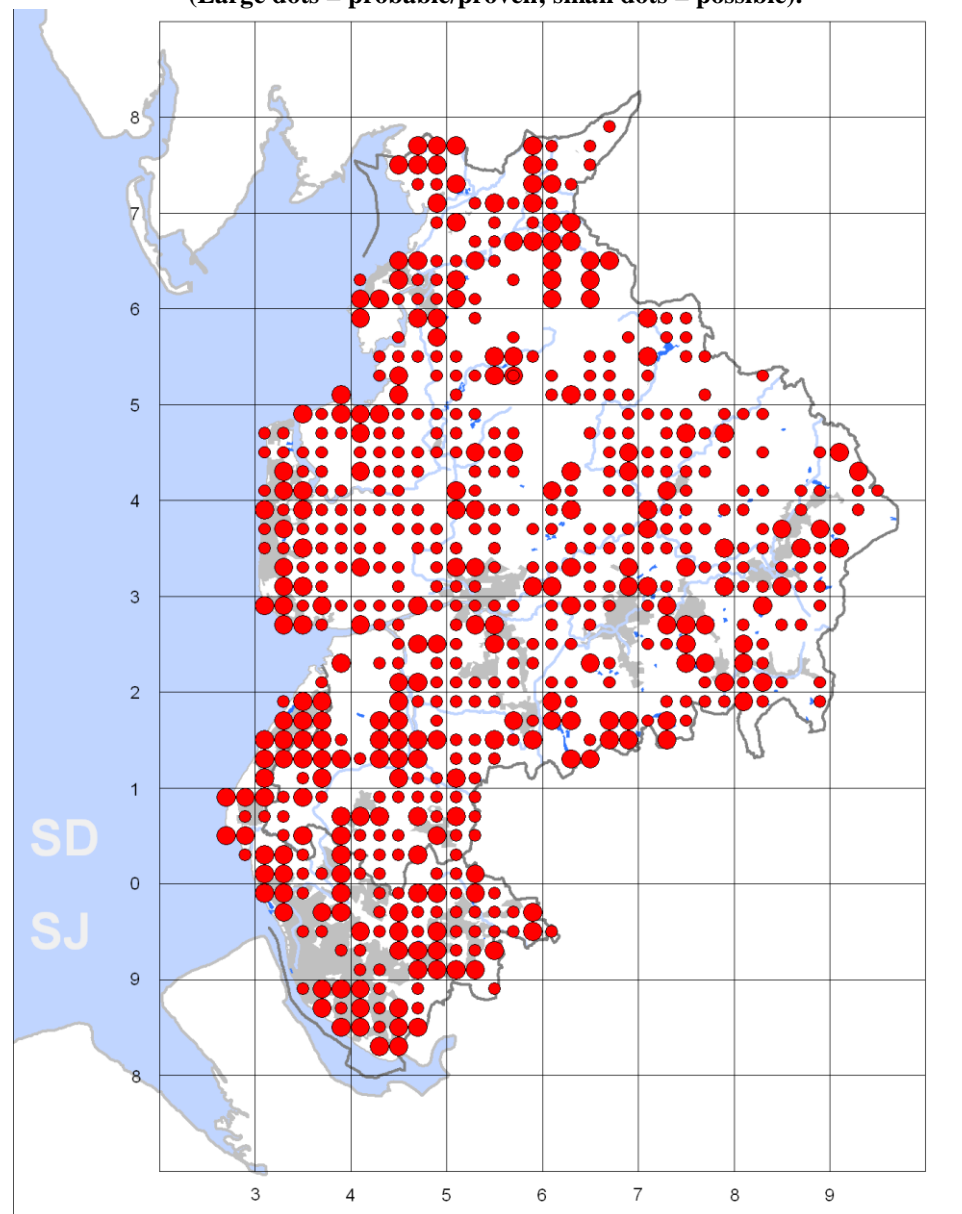
SPARROWHAWK *Accipiter nisus*

Breeding

After a medium-term increase of 100% since 1970 as the species recovered from the effects of the use of organochloride pesticides, it appears that the national population may now be in decline, having fallen by 7% between 1995 and 2010.

Figure 1. Sparrowhawk: breeding distribution, 2008-2011.

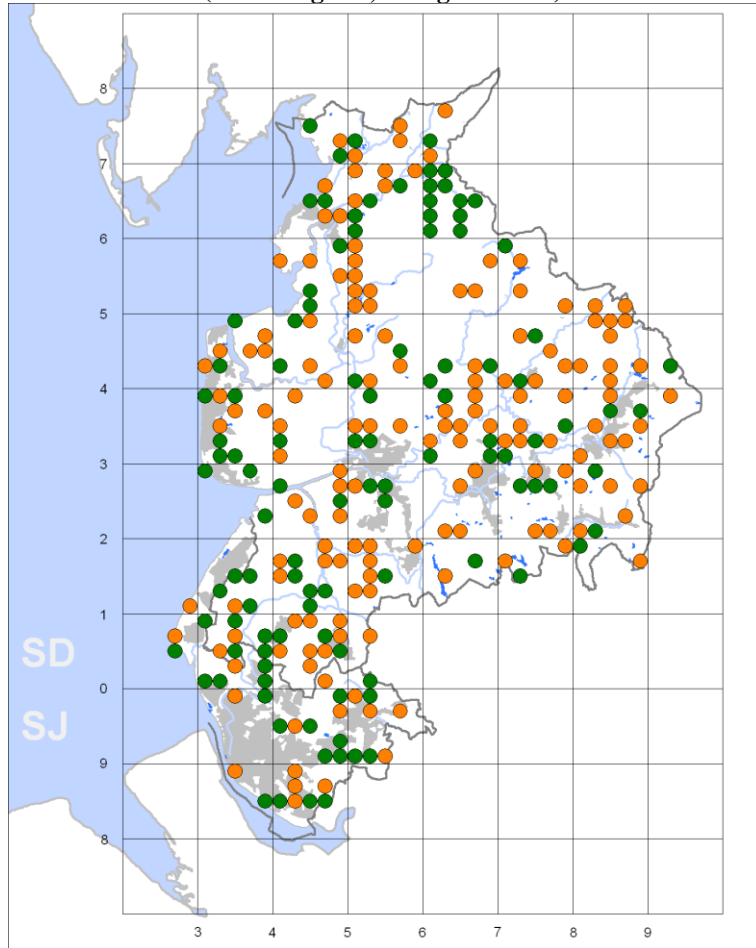
(Large dots = probable/proven; small dots = possible).



The Lancashire situation has followed national trends. The 1968-72 national Atlas found proven breeding in only 25 of the 10km squares in

Lancashire but this increased to 41 squares in 1988-91 with a further consolidation to 46 squares by 1997-2000.

Figure 2. Sparrowhawk: changes in breeding distribution, 1997-2000 to 2008-2011.
(Green = gains, orange = losses).



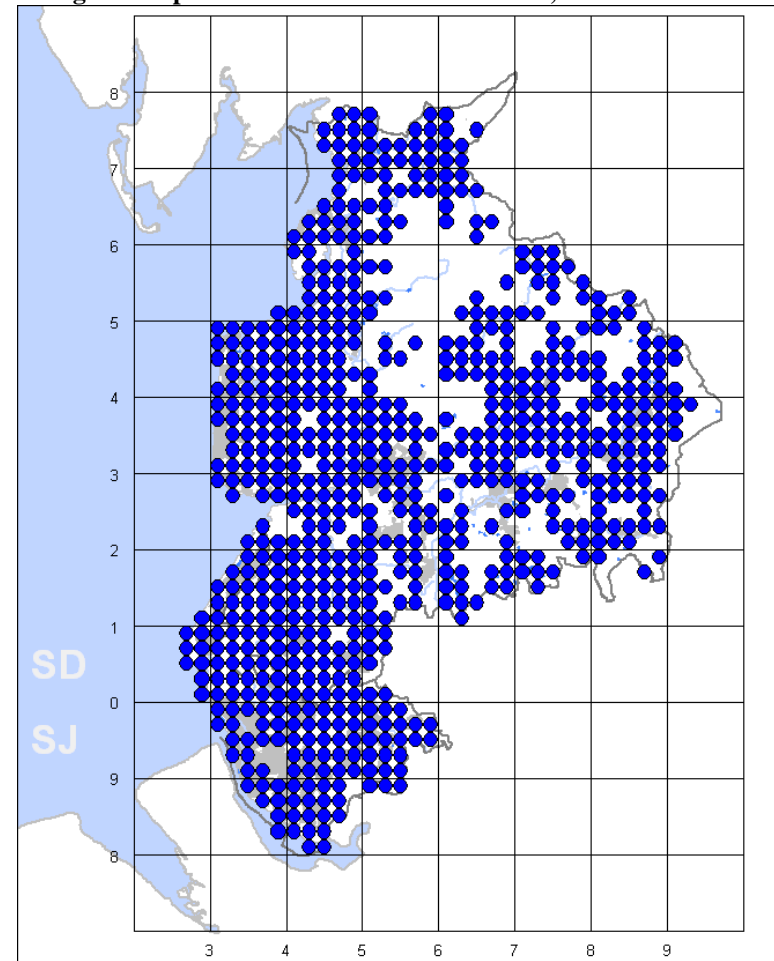
During 2008-2011 Sparrowhawks were proven or probably breeding in 229 tetrads, 24% of the county total and suggesting a range decrease of 16% since 1997-2000. However, their full summer range, including possible breeding records, encompassed 600 tetrads, 64% of the total and an increase of 5% since our previous survey (Fig.1). It is probably safest to conclude that there is no clear-cut evidence for any change in the status of Sparrowhawks in the past decade.

Sparrowhawks have a relatively sparse distribution in the east of the county, mostly avoiding the uplands and thinly wooded areas of the lowlands, the relative absence of confirmed breeding records in some 10km squares south the Ribble and throughout eastern Fylde being particularly noticeable.

Gains outweighed losses in the western third of the county and the opposite in the eastern two-thirds. (Fig.2). The exception was the eleven new tetrads in the north-east in SD66 where none was recorded during 1997-2000, possibly largely a result of increased survey effort. The population was estimated at 600 pairs.

Winter

Figure 3. Sparrowhawk: winter distribution, 2007/08-2010/11.



The winter distribution of this relatively sedentary species reflects the breeding distribution to a significant extent.

The 694 tetrads Sparrowhawks were recorded in during 2007/08-2010/11 included almost all those in the western third of the county apart from central Liverpool and urban Blackpool (Fig.3). Further east the most sparsely occupied 10km squares reflect a relative lack of breeding birds in this area but there is some evidence of withdrawal from the summer range, especially in Bowland.

The wintering population was estimated at 1800 birds.

SD

BUZZARD *Buteo buteo*

Breeding

At the time of the 1968-72 national breeding Atlas there were only two confirmed breeding pairs in Lancashire in the Leighton Moss and Silverdale area. By the time of the 1988-91 Atlas Buzzards had also become established in the Lune Valley but the 1997-2000 Lancashire Atlas reported that numbers had increased to 70 pairs, mostly in the north and south of the county.

Their population has since exploded with proven or probable breeding recorded during 2008-2011 in 311 tetrads, a third of the county total and indicating a fivefold increase in range in the past ten years (Fig.1).

Buzzards are now only slightly less widespread than Kestrels and in many areas are the raptor most likely to be seen. Birds were actually present in a total of 668 tetrads; perhaps the majority were foraging away from nest sites or immature birds seeking to establish territories but some at least are likely to have been additional breeding birds.

Areas have been occupied recently throughout the county, with the notable exception of the area around Heysham, but these have been heavily concentrated in Merseyside and West Lancashire where distribution is now almost solid, including one or two pairs nesting on the edge of the Liverpool conurbation (Fig.2). Although numbers have also increased in north Lancashire, where Buzzards first became established, it is noticeable that seven of the 13 apparently-abandoned tetrads occurred there.

Figure 1. Buzzard: breeding distribution, 2008-2011.
(Red dots = probable/proven; yellow dots = present in summer).

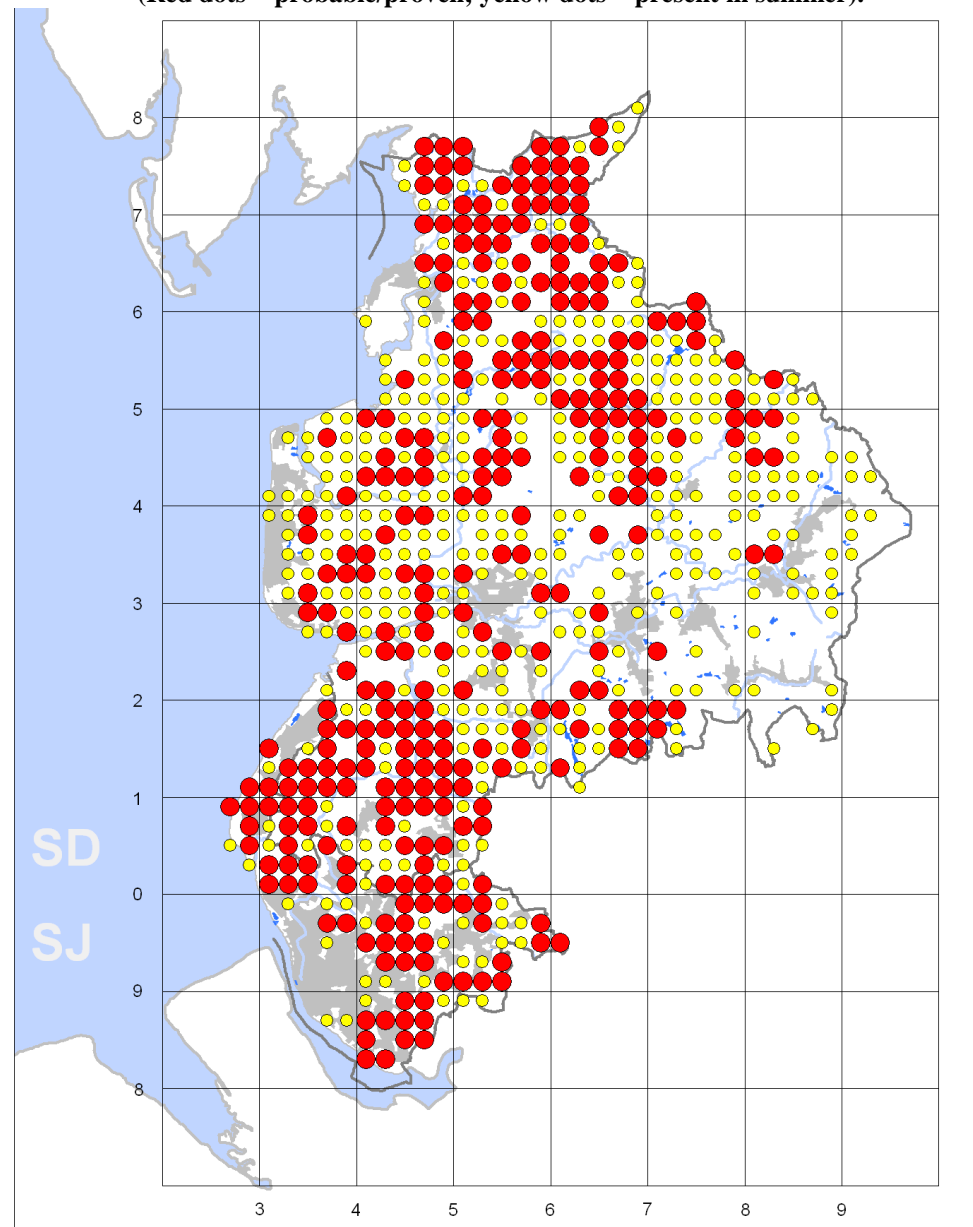
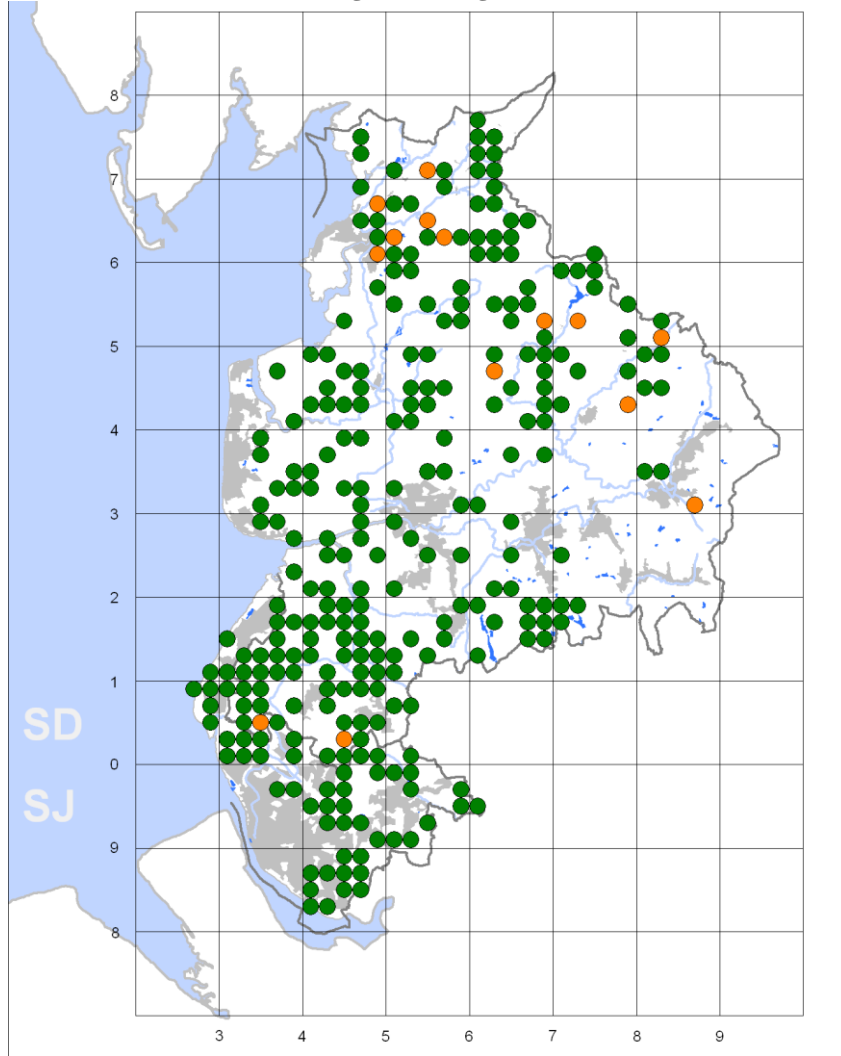


Figure 2. Buzzard: changes in breeding distribution, 1997-2000 to 2008-2011.
(Green = gains, orange = losses).



It is now thought that at least 450 pairs breed in the county, a striking increase from the 70 pairs estimated in 2000. Nationally there have been recent attempts to control their numbers to protect Pheasant-rearing interests, and this may become a threat in Lancashire in the coming years.

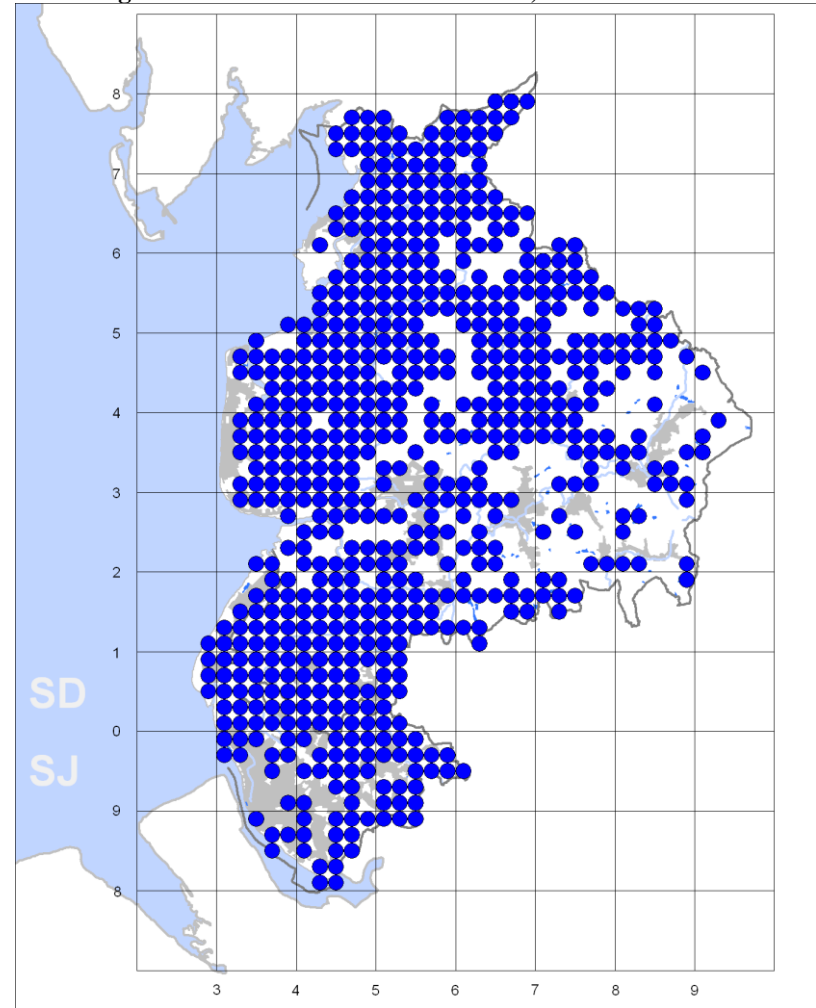
Winter

Buzzards were recorded in 663 tetrads during 2007/08-2010/11, including 71% of the county total, with a distribution essentially similar to the summering population (Fig.3).

Like other raptors, this is not a gregarious species but counts of five or more were made in 66 tetrads and of ten or more in 16.

SD

Figure 3. Buzzard: winter distribution, 2007/08-2010/11.



HARRIS'S HAWK *Parabuteo unicinctus*

There were two breeding records during the atlas period, both involving escaped birds.

A pair that nested close to Banks Marsh in 2008 was well documented; they laid eggs before being located but the clutch was removed by Natural England staff (one egg being successfully hatched and raised in captivity) and the female later captured.

The other breeding record was less certain (although the description of the birds was fine), being reported by a member of the public as nesting with an unknown outcome in 2011 and possibly 2010 near Sefton Village.

There were at least 20 other reports of escaped birds at all times of the year – probably many more as this species becomes the bird of choice for falconers on either side of the law – almost all of them in Merseyside or the Fylde.

SJW

KESTREL *Falco tinnunculus*

Breeding

Nationally, Kestrel numbers fell by 32% between 1995 and 2010 and this decline appears to be accelerating.

The situation in Lancashire is more equivocal. The 1997-2000 Lancashire Atlas noted that the population appeared to be holding up in the short term. Ten years later breeding was either proven or probable in 364 tetrads during 2008-2011, representing 39% of the county total and indicating a range contraction of 14% since 1997-2000 (Fig.1).

However, the total summer range (including possible breeding records) increased by 4% over the same period to 762 tetrads. Anecdotal evidence based on submissions to the county report tend to confirm that numbers are indeed falling, with many observers noting that Buzzards are now more frequently encountered.

Breeding took place in all parts of the county and nesting Kestrels were only absent from urban areas, the highest fells, saltmarshes and featureless farmland. Distribution was especially solid in the West Pennine Moors, West Lancashire and north Fylde.

Figure 1. Kestrel: breeding distribution, 2008-2011.
(Large dots = probable/proven; small dots = possible).

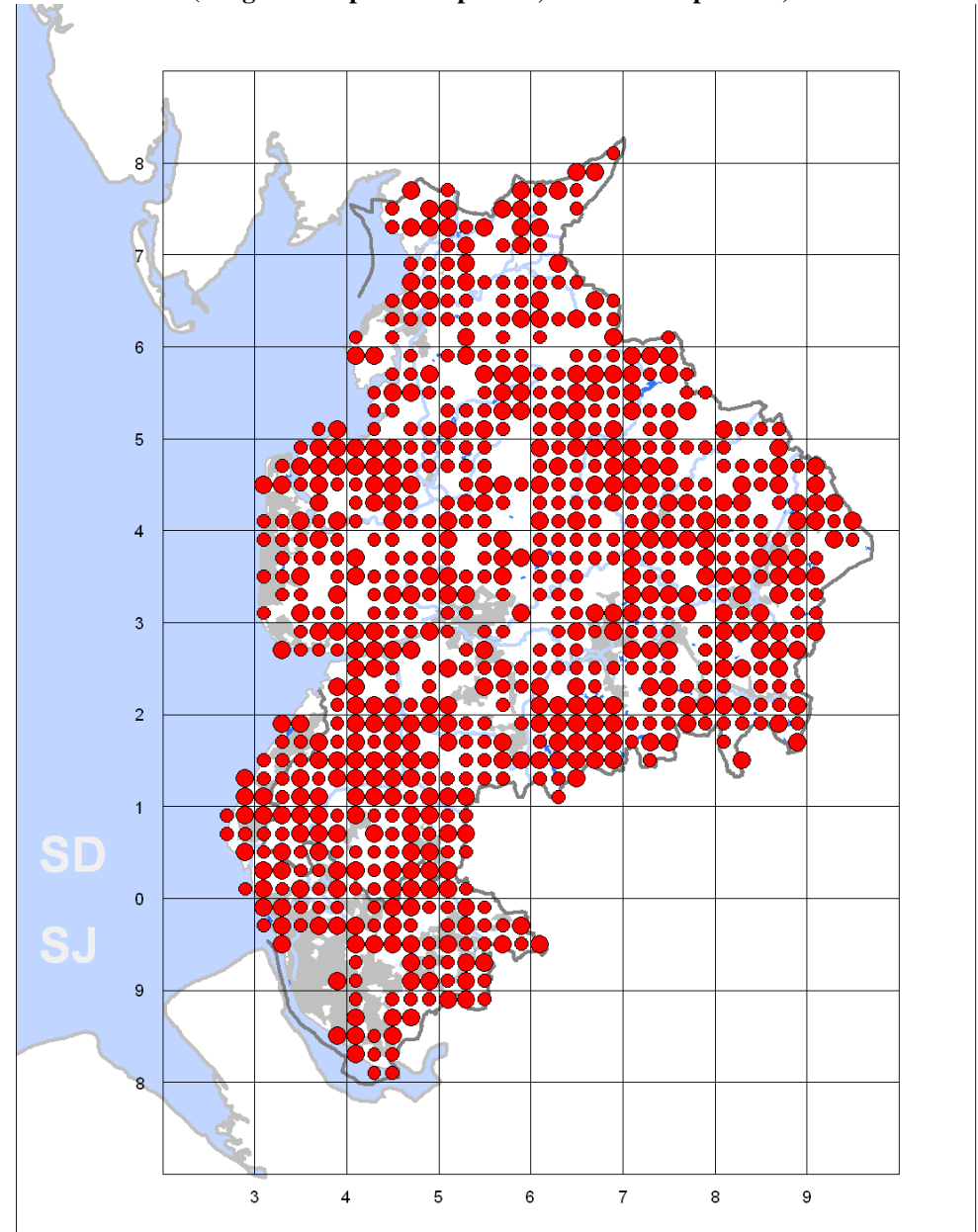
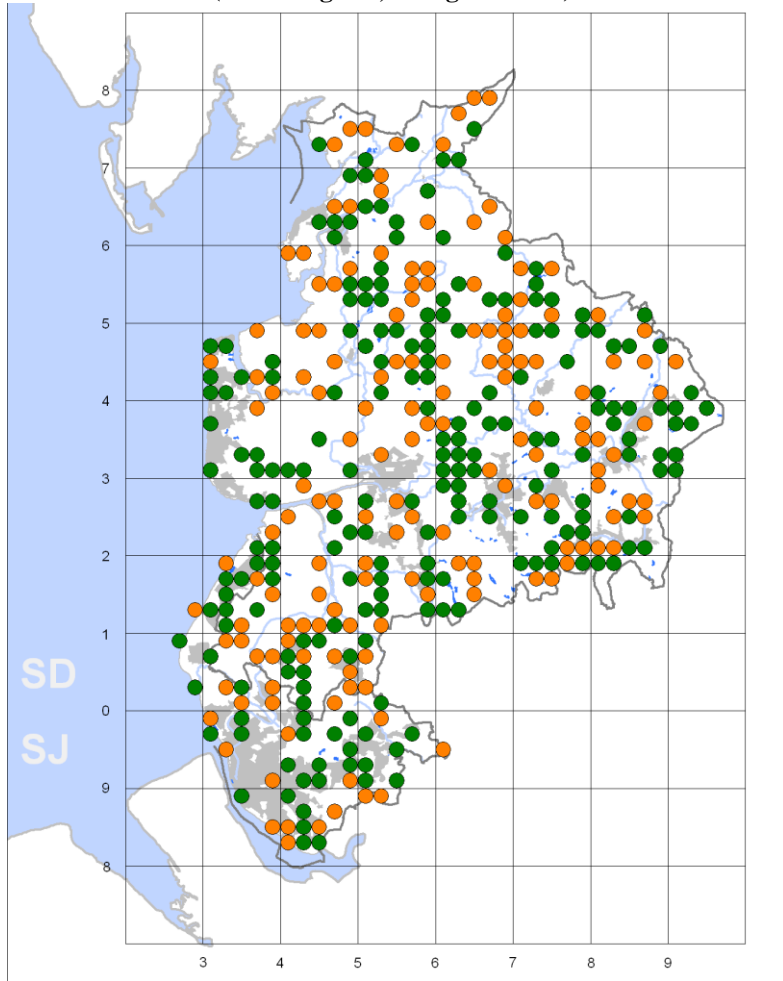


Figure 2. Kestrel: changes in breeding distribution, 1997-2000 to 2008-2011.
(Green = gains, orange = losses).



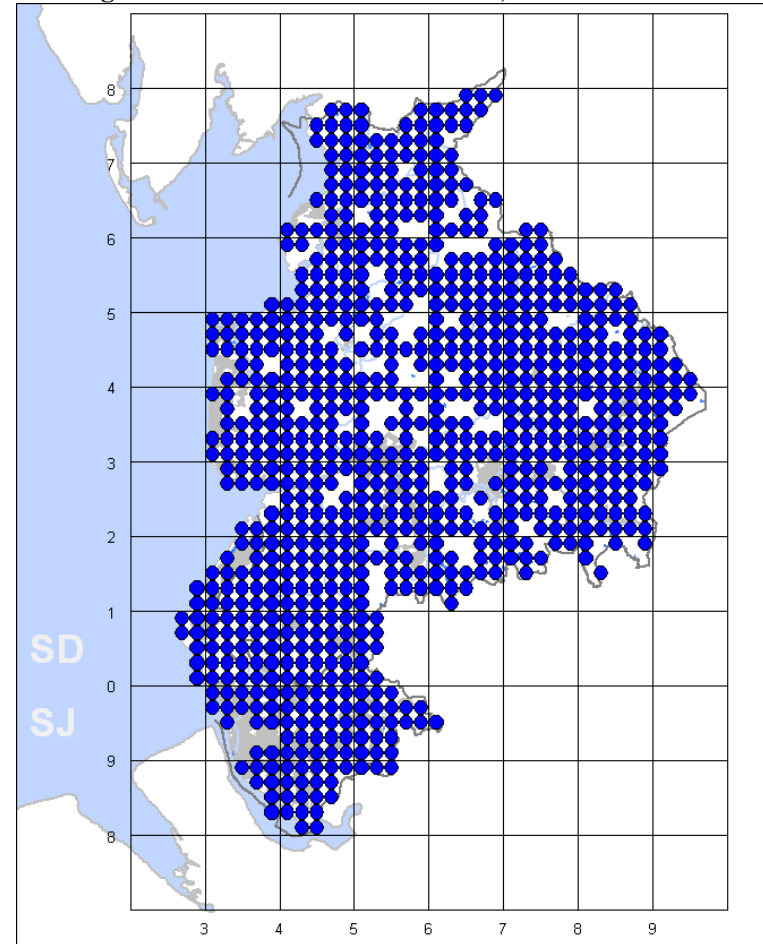
Tetrads lost as probable/proven sites since 1997-2000 outnumbered those gained but showed little clear pattern with the possible exception of a cluster in south-east Bowland (SD64). Newly-occupied tetrads were similarly distributed throughout the county but showed some evidence of colonisation of urban fringe areas in the Merseyside conurbation and the Fylde coast and a solid cluster in the Ribble Valley to the east of Preston (Fig.2).

The population was estimated at 600 pairs.

Winter

The winter range extended to 835 tetrads during 2007/08-2010/11, covering 88% of the county total and, perhaps surprisingly, placing Kestrels in the top twelve of the most widespread species in Lancashire (Fig.3).

Figure 3. Kestrel: winter distribution, 2007/08-2010/11.



They were seen throughout the county including most upland areas but generally shunned the urban areas of Liverpool, Blackpool, Lancaster and Blackburn and to a lesser extent Chorley and Preston. Less predictably, there were several gaps in distribution in the area around Garstang in central Lancashire, probably because of lower levels of coverage there – 40% of all Kestrel records came from additional rather than timed visits.

Typically, almost all records were of ones or twos but eight or more were recorded in 19 tetrads during the winter periods.

Larger gatherings have been reported in autumn with some frequency in recent years, feeding on concentrations of nectaring butterflies or emerging insects, including 42 at Hesketh Out Marsh in autumn 2008.

The population was estimated at 1800 individuals.

SD

MERLIN *Falco columbarius*

Breeding

The breeding range increased slightly between the 1997-2000 and 2008-2011 Lancashire atlas surveys from 14 proven or probable breeding tetrads to 17, suggesting an increase of 21%; if the 37 possible breeding tetrads are taken into account then this would indicate a 38% increase in the total summer range. However, it is not clear if this represented any increase in population or simply more mobility between years.

Breeding took place entirely in the uplands on or adjacent to heather moorland, in three main areas. Bowland remains the undoubted stronghold with several pairs annually on United Utilities land and a similar number elsewhere including the Abbeystead estate. The West Pennine Moors sustained only occasional breeding pairs from the 1960s to the early 1990s but more recently these have become annual with perhaps four or five pairs in some years. Breeding also occurs in the South Pennines around Boulsworth Hill, and possibly in the north in the Leck Fell area.

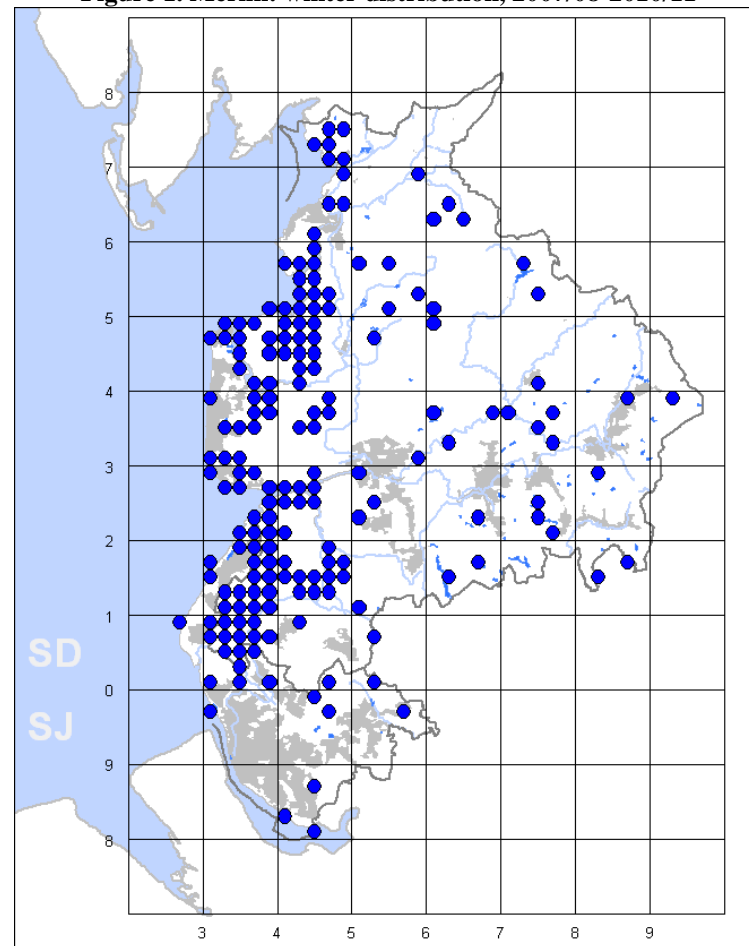
There were twelve apparently newly-occupied tetrads, all adjacent to previous breeding areas, as were the majority of the ten losses, with three in the Burnley and Rossendale areas the exception.

The breeding population was estimated at 25 pairs, which is similar to 1997-2000. Clearly there is some subjectivity in this estimate, but it points to around 2% of the national population being Lancashire breeders.

Winter

Merlins were recorded in 178 tetrads, just under 19% of the county total, during 2007/08-2010/11 (Fig.1).

Figure 1. Merlin: winter distribution, 2007/08-2010/11



There is a marked contrast between the east and west of the county; the species is an altitudinal migrant in Lancashire with most birds moving down to the lowland west in winter. Care needs to be taken not to overstate this, as some upland areas away from roads are given very limited or no coverage in winter so there will be some observer bias. Nevertheless, although some birds do stay on or near the breeding grounds in winter most favour coastal saltmarshes, lowland mosses and farmland.

The wintering territories of Merlins can be extensive, and there was undoubtedly a high degree of duplication of records both within and between

winters; it is also unclear how much immigration occurs from other populations. The population is estimated at 75 individuals,

SD

HOBBY *Falco subbuteo*

There was strong circumstantial evidence of breeding at a number of sites from 1990 onwards, but proving this can be frustratingly difficult. The first confirmed nesting in Lancashire occurred in 2001 in West Lancashire, but had been strongly suspected prior to that in the north of the county.

Hobbies were confirmed to be breeding in four tetrads during 2008-2011 and thought to be probably breeding in another three. Although these probable/proven records represent an arithmetically significant increase on the three such records in 1997-2000, they are far from offering conclusive evidence that Hobbies are set to become fully established in Lancashire as they have done further south.

These confirmed or probable breeding records were scattered throughout the county, in Merseyside, West Lancashire, Garstang, the Lune Valley and Rossendale. Birds were also seen regularly at Brockholes, suggesting that nesting probably also occurs somewhere in the Ribble Valley.

It is difficult to interpret the additional 23 tetrad records where birds were thought to be possibly breeding, as all were registered as 'seen in suitable breeding habitat' – something which potentially exists throughout almost all the county – or to distinguish these from the ten tetrads in which Hobbies were categorised as 'summering' or even many of the 53 where they were regarded as migrants.

What is clear, though, is that number of Hobby sightings in Lancashire has continued apace; annual reports averaged a dozen or so by 2000 and 40 by 2005, so their presence in 94 tetrads during the survey years represents another significant increase.

The county population is now assessed as in the region of 15 pairs. The availability of suitably undisturbed nesting may be a limitation on their spread but climatic factors are also likely to play a part.

SD

PEREGRINE *Falco peregrinus*

Breeding

Peregrines were proven to be breeding in 41 tetrads during 2008-2011 and thought probable – mainly due to the presence of displaying pairs – in a further 16, indicating an 84% increase in breeding range. North-west Bowland remains the core area but breeding now takes place in all parts of the county with the exception of the central area (except for one pair in Preston).

The summer range is significantly greater than this. If all possible breeding and summering records are taken into account Peregrines were found in 238 tetrads, 25% of the county total.

A remarkable 43 new nesting sites seem to have been established since 1997-2000, a third of them in the core area of Bowland, the remainder spread throughout the county. Set against these, 15 tetrads were apparently abandoned; some of these appear to have involved short-distance moves (or perhaps small mapping errors) but there do seem to have been a few definite losses in the north-west of the county.

Also striking has been the spread of urban nesting. A pair in Liverpool's dockland in the mid-1980s was amongst the first to make this adaptation nationally, but this has now become established with four sites in Liverpool and singles in St. Helens, Southport, Blackpool and Preston. Sites used include churches (and Liverpool Cathedral), disused mill chimneys, gasometers, disused power stations and electricity pylons; much of this increase has occurred since 2000.

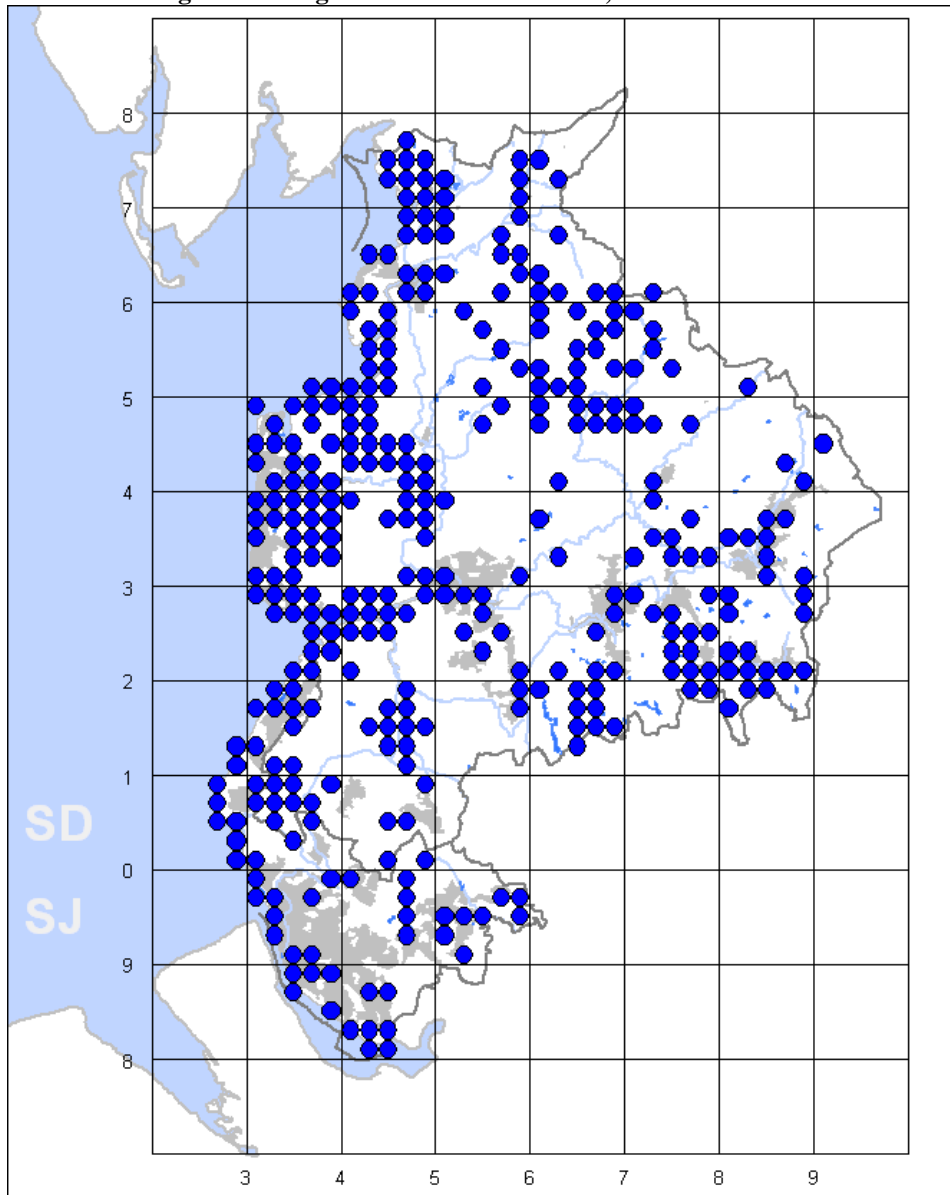
The Lancashire population was estimated at 35 pairs in 2000 and is now considered to have increased to 50 pairs.

Winter

The wintering population ranges widely; birds were noted in 345 tetrads, 36.5% of the total, compared with a summer range of 238 (Fig.1).

There was a clear bias towards the west, particularly estuaries but also agricultural land on the coastal plain, most notably in the Fylde and around Martin Mere; although this may be exaggerated by observer effort it is known that many Peregrines are altitudinal migrants in winter. However, significant numbers do remain in upland areas and there was a particularly solid cluster of sightings in the Rossendale/south Burnley area.

Figure 1. Peregrine: winter distribution, 2007/08-2010/11.



Estimating the winter population is difficult, partly because Peregrines are very mobile and there is clearly much duplication of records, but also because the scale of immigration from elsewhere in Britain is unknown. On

the assumption that it is largely composed of local breeders, their surviving offspring and non-breeders, then it is probably around 180 birds.

Whilst the Peregrine has gone from strength to strength as a Lancashire breeding bird it continues to face a number of threats, especially in rural areas. Egg-collectors and those seeking chicks for falconry purposes continue to target nests, while adults may be killed to protect shooting interests.

SD

WATER RAIL *Rallus aquaticus*

Breeding

Water Rails have to be our most difficult species to survey with any degree of confidence at any time of year but a technique of playing recorded calls and listening for responses has been pioneered by RSPB and, wherever it has been used, has increased our understanding of Water Rail breeding numbers dramatically. At Leighton Moss, for example, where over 100 pairs are located annually in this way, the maximum actually seen during any one day during the four years of the survey was five.

Despite these difficulties, Water Rails were found in 21 tetrads during 2008-11, 67% more than in 1997-2000 (Fig.1) – an increase that was presumably due in large part to the efforts of conservation organisations to increase the number and size of reedbeds in Lancashire.

There were 17 newly-occupied tetrads; recent colonisation was proven at Delph Reservoir, Heysham, Brockholes, Lord's Lot Bog and Fazakerley Reedbed, while other gains were close to previous breeding sites (Fig.2). Similarly, three of the seven 'lost' tetrads were adjacent to current breeding sites.

Most sites recorded one or two pairs but larger counts during the survey were 138 pairs at Leighton Moss, 15 at Silverdale Moss and three at Marton Mere. The county population was estimated at 175 pairs. This represents 15% of the published British population estimate but the latter is acknowledged to be a very significant underestimate.

Figure 1. Water Rail: breeding distribution in 2008-2011
 (Large dots = probable/proven; small dots = possible)

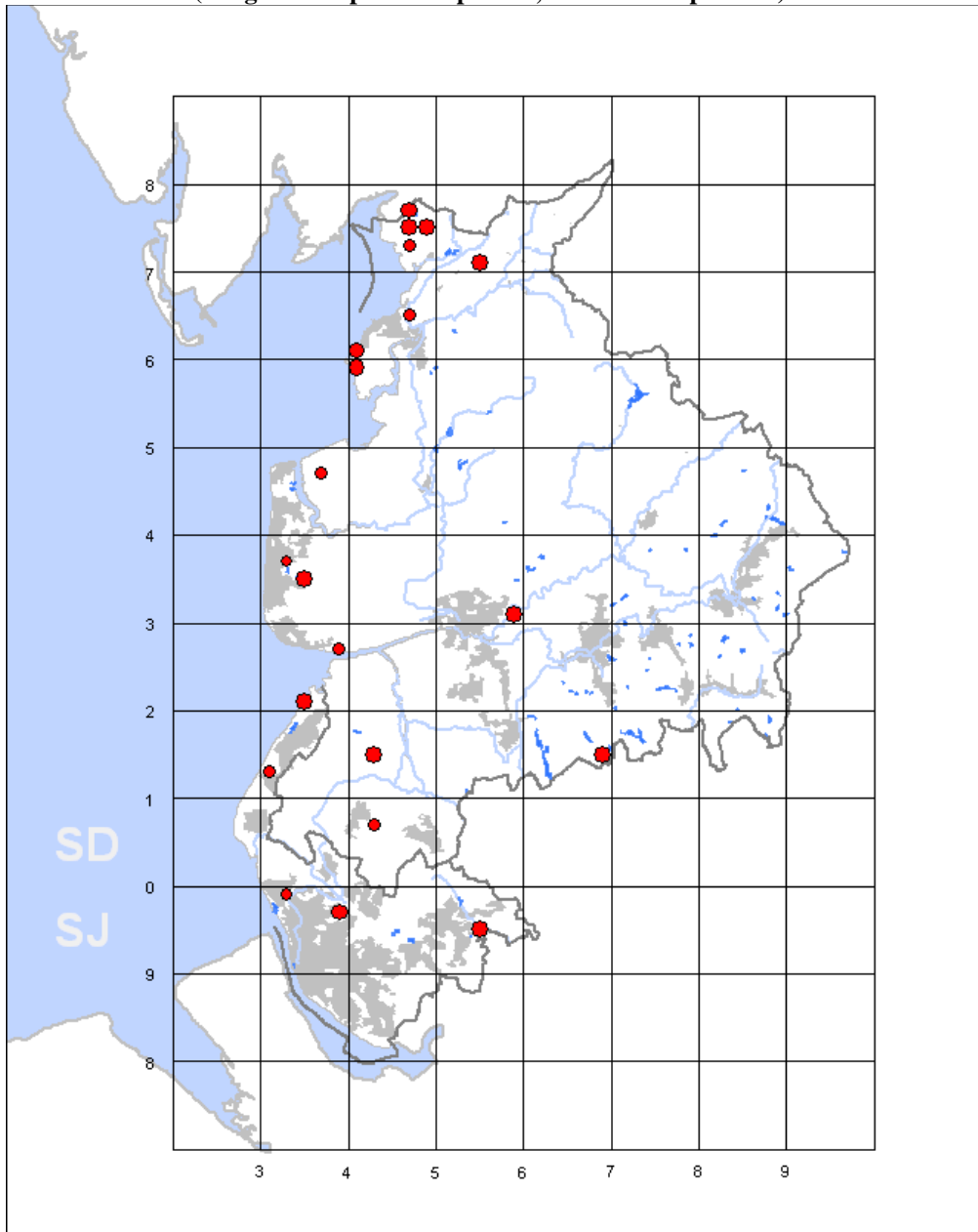
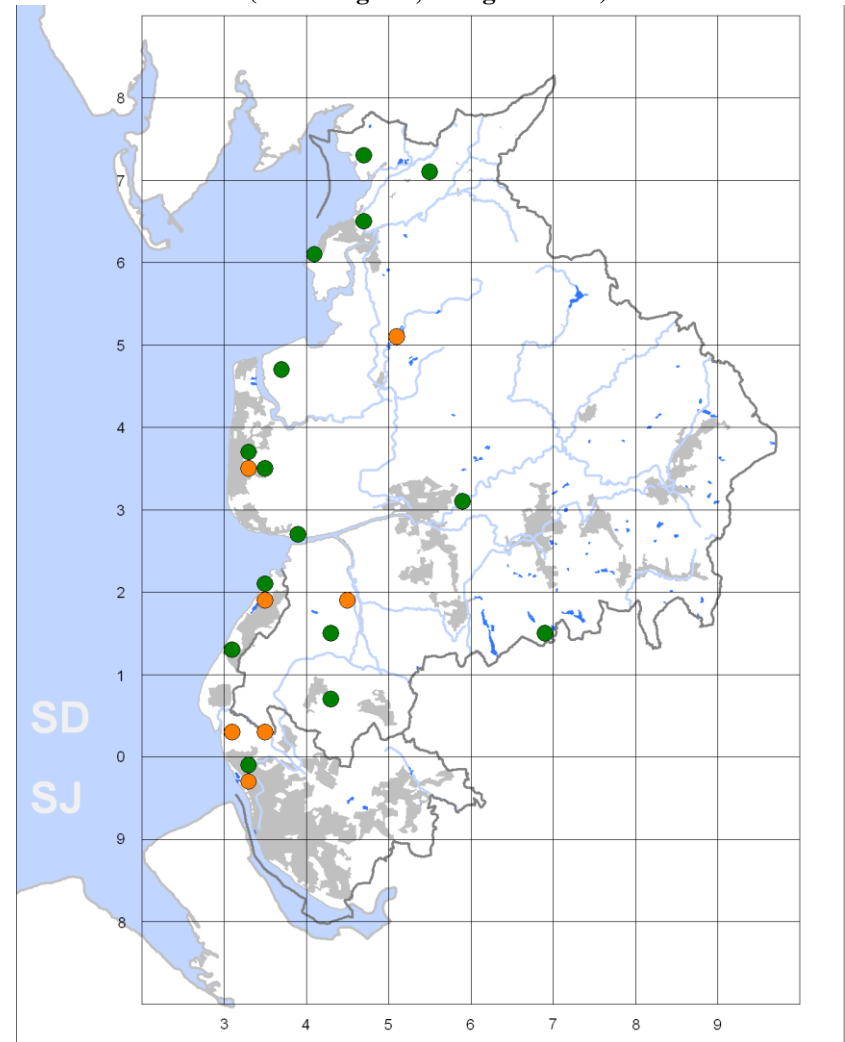


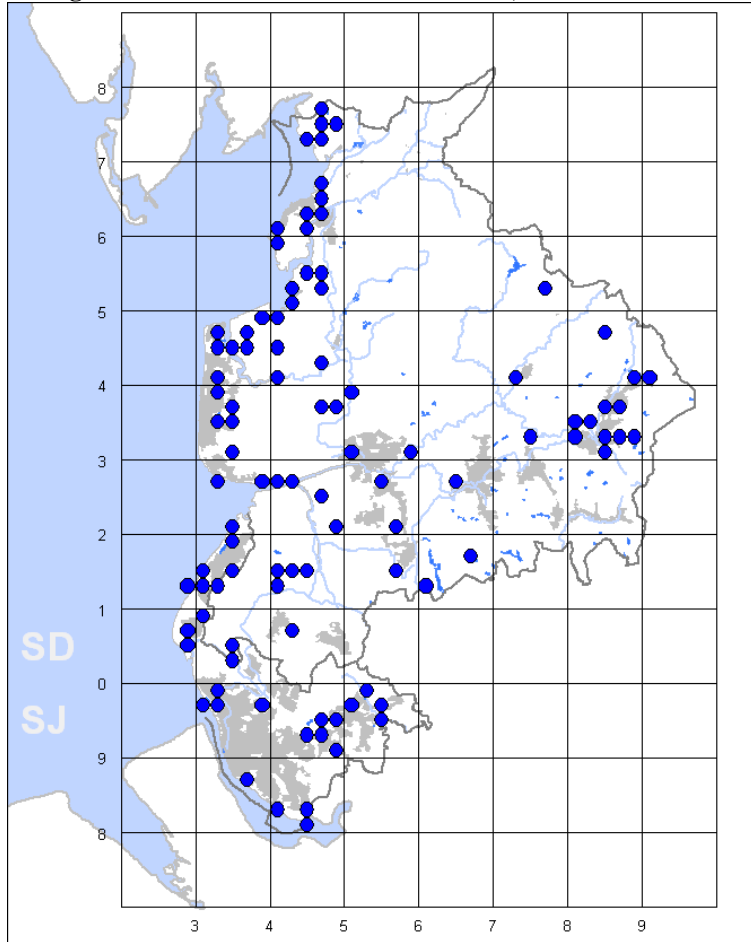
Figure 2. Water Rail: changes in breeding distribution 1997-2000 to 2008-2011.
 (Green = gains, orange = losses)



Winter

A hundred tetrads were occupied during 2007/08-2010/11, almost five times more than during the breeding season, reflecting the number of immigrants from continental Europe into the county and perhaps some dispersal from Lancashire breeding sites (Fig.3).

Figure 3. Water Rail: winter distribution, 2007/08-2010/11.



Roughly 75% of all records were in the western half of the county and more than half of these on the coast, while two-thirds of those in the east were found in the Burnley area.

Assessing numbers was difficult as always; most records were of low single figures although peaks of 15 were recorded at both Marton Mere and Leighton Moss, the latter at least presumably a considerable underestimate. The county population was estimated – on the basis that far more were present at Leighton Moss than were seen – at around 600 individuals.

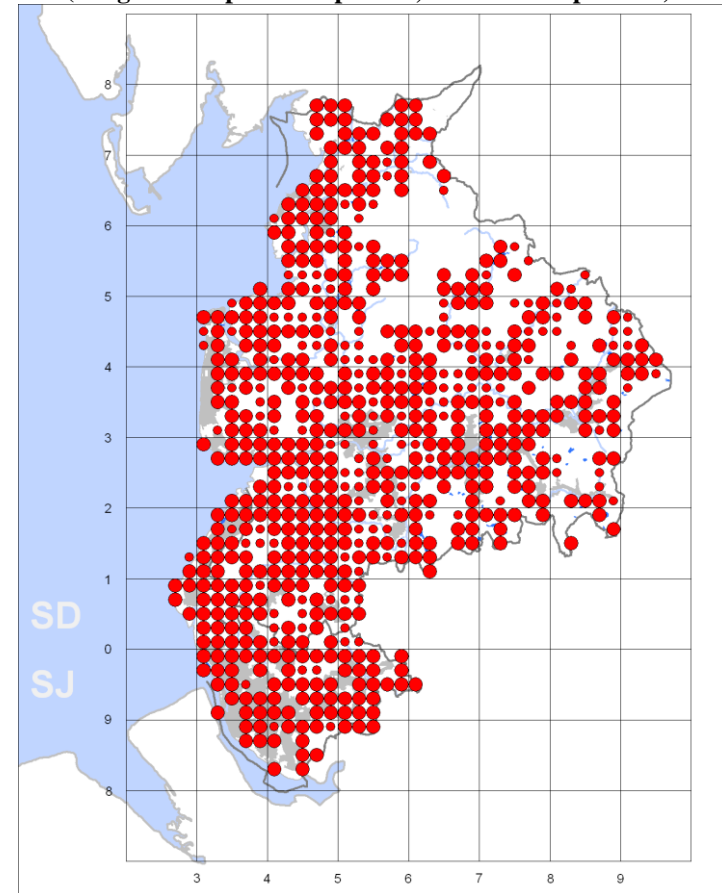
SJW

MOORHEN *Gallinula chloropus*

Breeding

It seems that the breeding range and numbers of Moorhens have changed little for 150 years, although their distribution has undoubtedly altered as suitable breeding sites have appeared and disappeared.

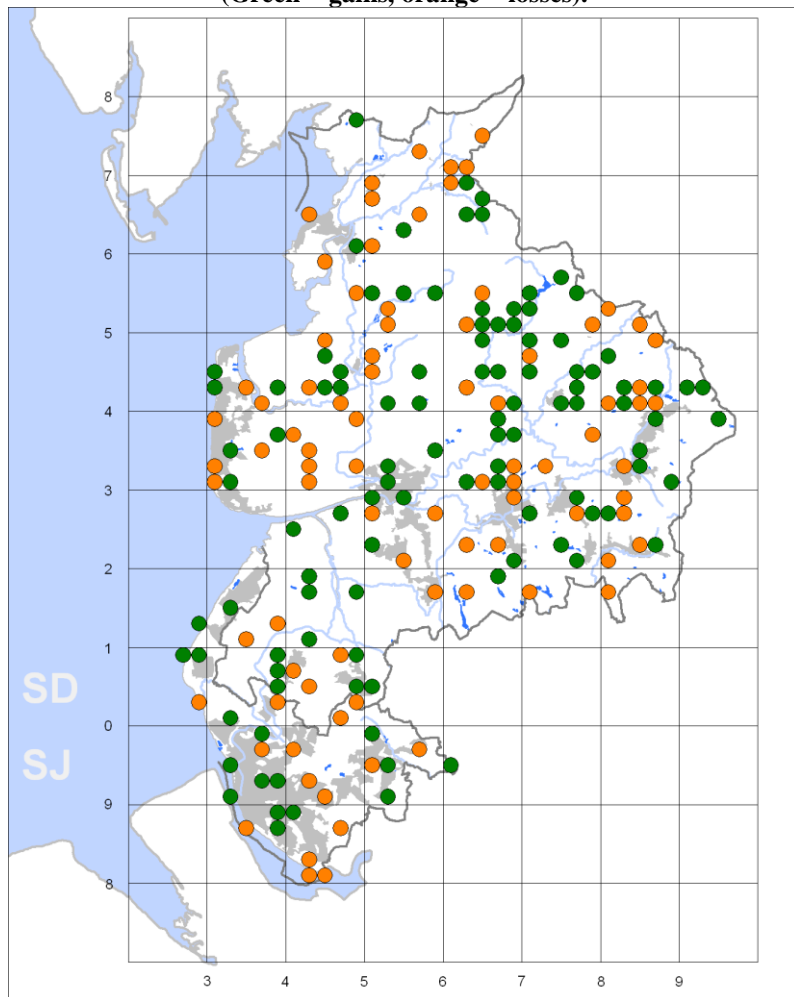
Figure 1. Moorhen: breeding distribution, 2008-2011.
(Large dots = probable/proven; small dots = possible).



During the present survey they were located in 671 tetrads, 71% of the county total, representing an insignificant range expansion of just 4% since 1997-2000 (Fig.1). Although absent from the high fells, breeding was widespread throughout most of the county but relatively patchy in many

areas, being dependent upon the presence of vegetated water bodies for nesting.

Figure 2. Moorhen: changes in breeding distribution, 1997-2000 to 2008-2011.
(Green = gains, orange = losses).



Suitable breeding sites appear to have come and gone with some frequency since our first survey, with 107 tetrads newly occupied and 86 apparently abandoned (Fig.2). These changes occurred throughout the county but gains appear to have been proportionately higher in the east of the county and losses in the north.

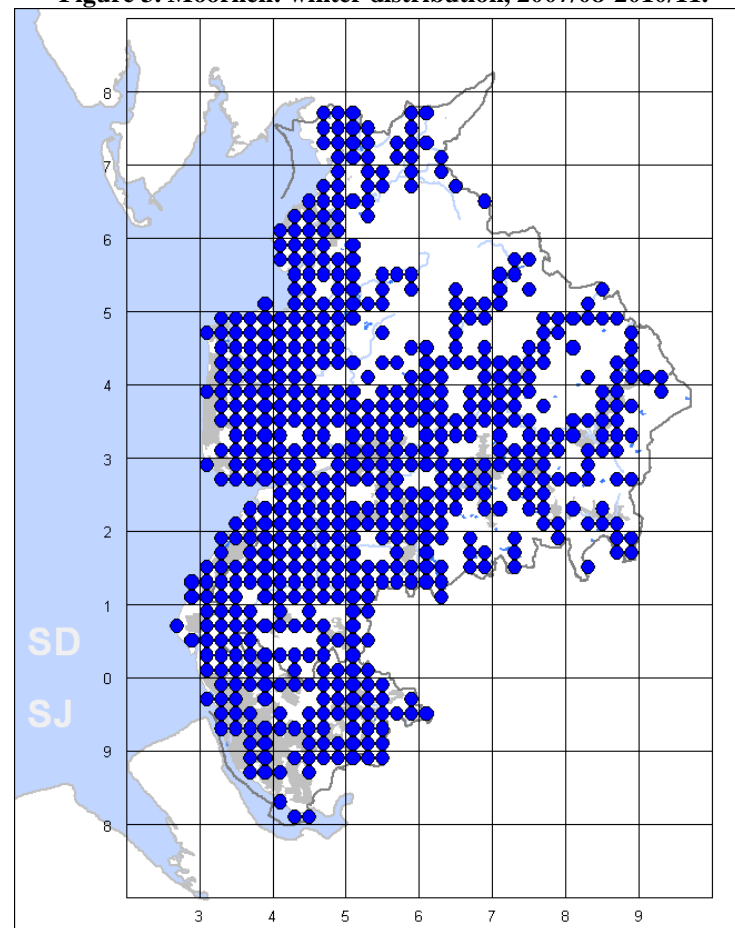
Breeding densities were 20% higher in the east than the west and in the south than the north, so, unusually, the highest were found in the south-east of the county.

Tetrad population estimates suggested an average of four pairs were present in each occupied tetrad, producing a county population estimate of 2500 pairs, roughly 1% of the British total.

Winter

Although a small number of Moorhens do migrate for the winter, the majority are quite sedentary, so that their geographical distribution is almost identical to summer's (Fig.3).

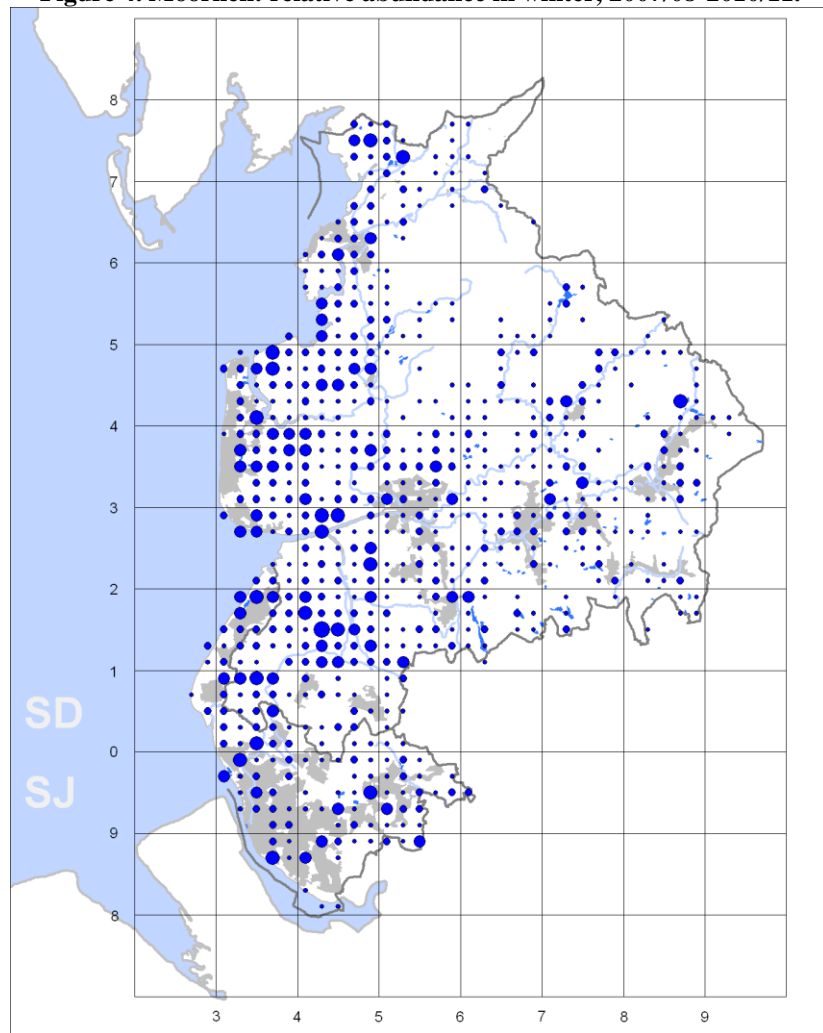
Figure 3. Moorhen: winter distribution, 2007/08-2010/11.



However, some concentrations do occur on the larger wetland sites and birds were found in slightly fewer tetrads – 620 or 66% of the county total – in winter.

Although Moorhens remained present in winter more or less throughout their breeding range, in sharp distinction to summer they were significantly more numerous in the west of the county than the east (Fig.4).

Figure 4. Moorhen: relative abundance in winter, 2007/08-2010/11.



Dot size in descending order: 375; 30-80; 15-29; 5-14; 1-4

Of the 19 tetrads that held 30 or more birds only one was in the east. The largest counts during 2007/08 to 2010/11 were 375 at Martin Mere, 79 in Sefton Park, Liverpool, 73 on Slipper Hill/Whitemoor Reservoirs and 52 at Marshside. Additionally, although large numbers were not counted during timed visits, tetrad populations at Hesketh Bank were estimated at 200 and 100 on Much Hoole Moss.

Winter densities away from the main sites were estimated at twelve per occupied tetrad, suggesting a county population of 8000 individuals, some 3% of the British population. The proportion of the national total in the county thus appears to be three times higher in winter than in summer.

SJW

COOT *Fulica atra*

Breeding

Coots bred in 350 tetrads during 2008-2011, 37% of the county total (Fig.1). This figure was 6% higher than in 1997-2000 but this is probably best interpreted as a continuation of the species' more or less stable range within Lancashire and North Merseyside, which extends as far back as at least the mid-twentieth century.

However, very significant changes in distribution within that range have taken place since 2000, with 124 tetrads newly occupied and 110 no longer so (Fig.2).

There were two fairly clear-cut clusters of new tetrads – throughout the Liverpool conurbation and in the central area of Fylde – but the others were fairly widely scattered. Losses were concentrated in the Chorley area and in north Lancashire but were likewise widely distributed. It is very difficult to account for these substantial changes in distribution, which suggest that almost a third of sites occupied in 2000 have since been abandoned, with a roughly similar proportion being newly colonised.

Around 75% of occupied sites were in the lowlands in the west of the county with the majority of these in the south-west. Where birds were present relative densities were three times greater in the west than the east but there was no difference between the south-west and north-west.

Figure 1. Coot: breeding distribution, 2008-2011.
 Large dots = probable/proven; small dots = possible).

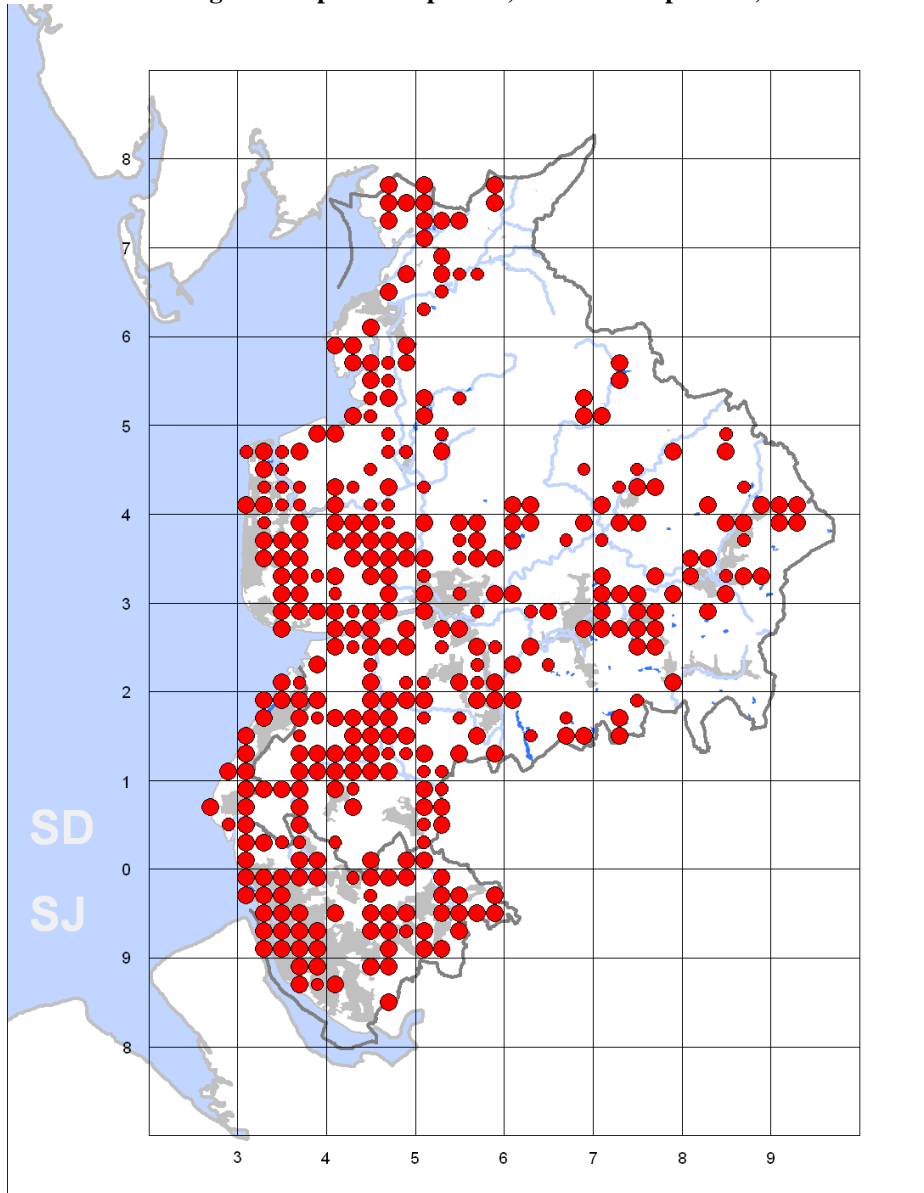
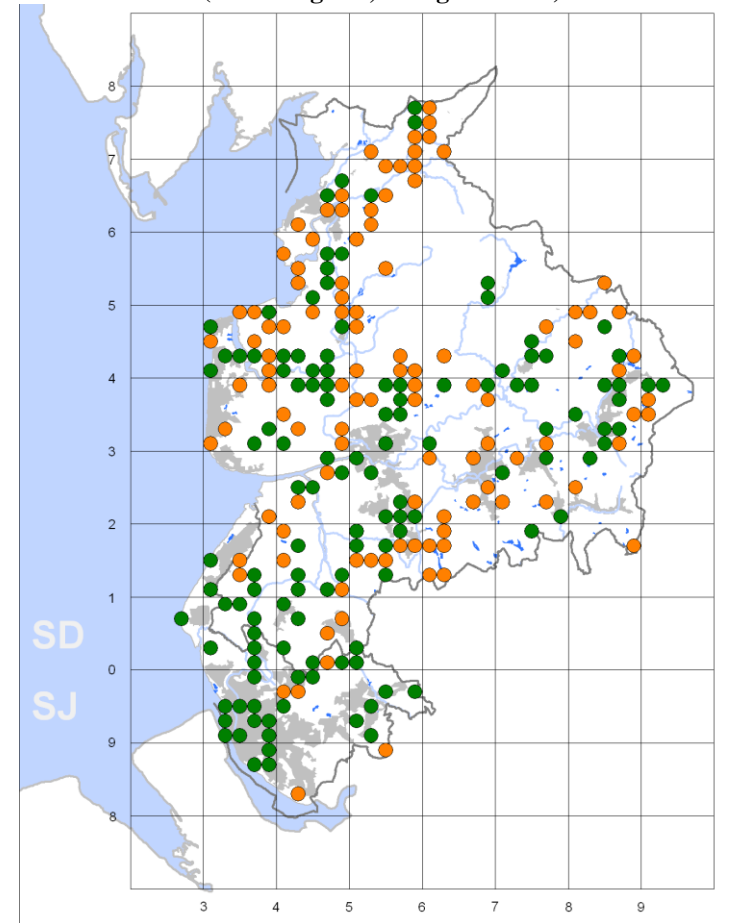


Figure 2. Coot: changes in breeding distribution, 1997-2000 to 2008-2011.
 (Green = gains, orange = losses).



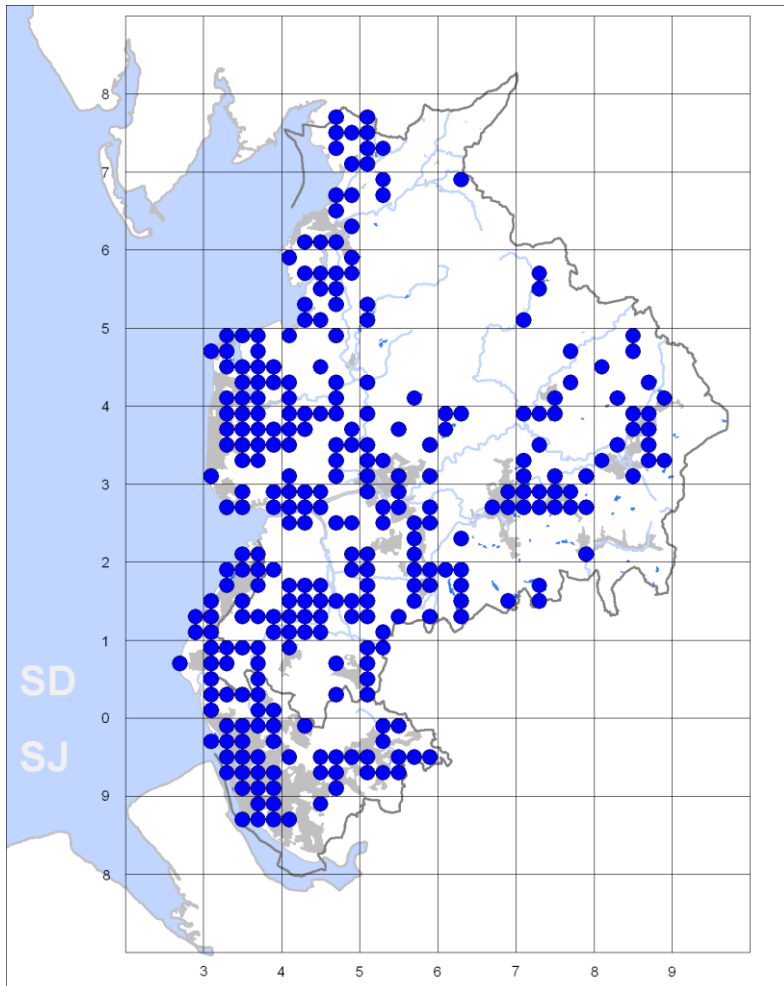
Peak breeding totals published in the county report during 2008-2011 included 52 pairs at Marshside, 26 pairs at Brockholes and 20 pairs at Martin Mere, but double-figure totals were also registered at Knowsley Park, Seaforth, Downholland Moss, on various stretches of the Leeds-Liverpool Canal in Merseyside and West Lancashire, Southport Marine Lake, Marton Mere, Ream Hills, Fleetwood Marsh, Thurnham, Myerscough Quarry and Scorton. Breeding numbers were not assessed at Leighton Moss but based upon the early summer timed visits it would appear that an absolute minimum of 60 pairs nested on the RSPB Silverdale reserves. However, most tetrads

held much smaller numbers and the best guess at a county population total is 1000 pairs, around 3% of the British total.

Winter

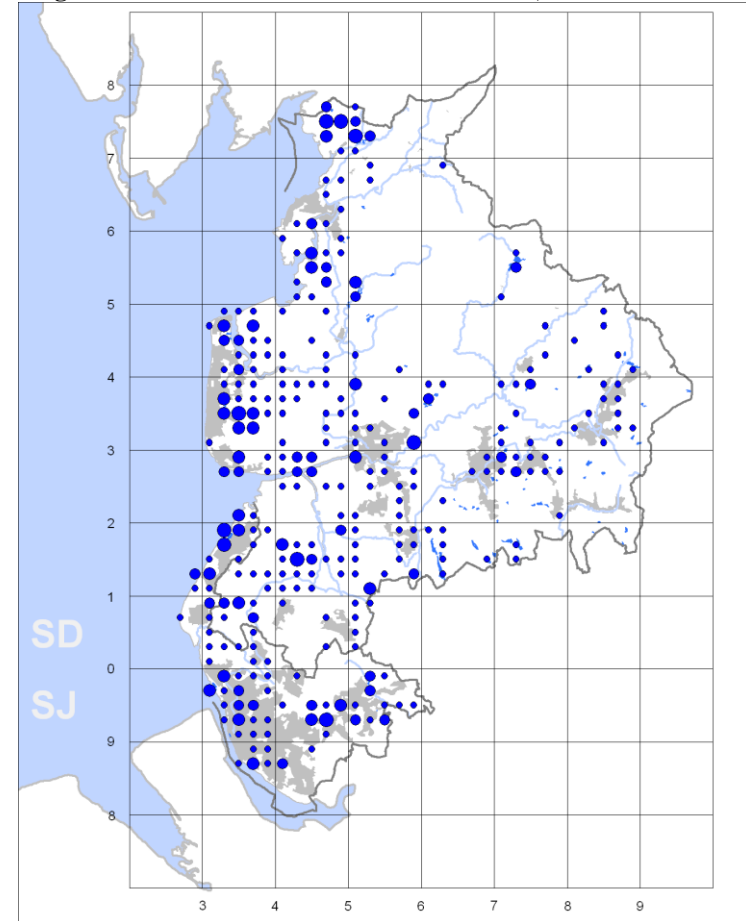
Coot were found in 292 tetrads during the winter survey, 31% of the county total (Fig.3). Their distribution was essentially similar to the breeding season's with most occupied tetrads in the western half of the county and a good number in the south-east, particularly in the Blackburn and Burnley areas, but virtual absence in the north-east of the county.

Figure 3. Coot: winter distribution, 2007/08-2010/11.



However, the number of birds was far less evenly distributed with close to 75% of the estimated total population of 6000 (about 3% of the British total) being found on a dozen or so of our largest water bodies (Fig.4). Only small numbers remained in the east of the county.

Figure 4. Coot: relative abundance in winter, 2007/08-2010/11.



Dot size: 250-1470; 50-249; 20-49; 1-19

The largest counts during 2007/08 to 2010/11 were 2300 on Southport Marine Lake, 1025 at Martin Mere, 836 on Pine Lake/Dockacres, 670 at Leighton Moss, 500 at Brockholes and around 400 at both Marton Mere and Prescott Reservoirs.

SJW