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Winter gulls in the United Kingdom: results from the 2023/24–2024/25 Winter Gull (Roost) Survey

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BTO Birds Science People

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Contents

Executive summary

1. A seventh Winter Gull (Roost) Survey (WinGS) was carried out in 2023/24–2024/25. This was the first such survey since 2003/04–2005/06 following decadal surveys which had taken place from 1953 to 1993.
2. The 2023/24–2024/25 WinGS followed the same methodological approach as the 2003/04–2005/06 survey. January counts of gulls at known large Inland and Coastal roosts (Key Sites; nominally those previously used by over 1,000 gulls) were effectively treated as a census. Additional surveys were carried out at a stratified sample of Inland Sites and at a sample of Coastal Sites, in order to estimate the numbers of gulls roosting away from Key Sites and hence produce wintering population estimates for the United Kingdom (UK) and Great Britain and each of the four constituent countries that make up the UK, and also for the Crown Dependencies of the Channel Islands and the Isle of Man.
3. Updated winter population estimates were produced for five species: Black-headed Gull, Common Gull, Lesser Black-backed Gull, Herring Gull and Great Black-backed Gull. Additionally, a wintering population estimate was produced for Mediterranean Gull for the first time.
4. Pairwise analyses using Generalized Linear Mixed Models (GLMMs) were carried out to directly compare counts from WinGS sectors which were covered in both the 2003/04–2005/06 and 2023/24–2024/25 WinGS. These analyses complement the comparison of the population estimates from 2003/04–2005/06 with those from 2023/24–2024/25 which are based on the full dataset in each case and hence include sites which were not covered in both surveys.
5. Based on the updated winter population estimates, roost sites which could potentially be considered as nationally important for each species have been identified, i.e. sites supporting more than 1% of the Great Britain or All-Ireland population.
6. The 2023/24–2024/25 WinGS also included counts carried out in autumn 2024, the first time that autumn gull roost surveys have been carried out as part of the survey. Pairwise comparison was carried out to compare the autumn and winter counts.
7. Coverage overall was 81% for Key Sites, 52% for Inland Sample Sites and 55% for Coastal Sample Sites. We estimate that around 2.46 million gulls were present in the UK during winter in 2023/24–2024/25 (95% confidence interval: 2.10 million to 2.90 million), of which the vast majority were 1.10 million Black-headed Gulls (95% CI: 0.94–1.31 million), 720,000 Herring Gulls (640,000–810,000) and 520,000 Common Gulls (440,000–600,000). This is a substantial decline from the 3.9 million gulls (95% CI: 3.7 million to 4.1 million) estimated by the previous survey, with the population estimate for Black-headed Gulls alone in 2003/04–2005/06 (2.2 million) equivalent to the total number of wintering gulls estimated in 2023/24–2024/25.
8. Both the population estimates and pairwise analyses suggest that substantial declines have occurred on the UK scale for four of the five main wintering species for which estimates were produced in both the current and previous surveys (Black-headed Gull, Common Gull, Lesser Black-backed Gull and Great Black-backed Gull), with Herring Gull being the exception. These declines are broadly consistent with declines reported in winter by the Wetland Bird Survey and during the breeding season by both the Seabird Monitoring Programme and Seabirds Count.
9. Similarly, WinGS data for Mediterranean Gull confirm the substantial increases of this much smaller population to now 4,300 (95% CL 2,100–12,000) which have been observed by the other surveys.
10. However, there were contrasting results for Herring Gull, with the population estimates suggesting numbers have been broadly stable since the last WinGS and the pairwise comparison models suggesting they may have increased slightly. This contrast arises from differences in the datasets used by the two approaches: population estimates incorporate all available data from

each survey period, whereas the paired analyses are restricted to sectors that were surveyed in both periods. One possible explanation for the contrasting results is a change in roosting behaviour, with Herring Gulls becoming increasingly concentrated at large, regular roost sites that were more likely to have been surveyed during both WinGS periods. This suggests that an ecological winter range contraction towards optimal roosting habitat and reduced use of low-quality roosts may have occurred.

11. Comparisons at the scale of the four individual constituent countries of the UK show more variability, most notably for Common Gull which has decreased in England during the last 20 years but remained stable in Scotland and Wales, and Herring Gull which has declined in Scotland but increased elsewhere in the UK. The substantial overall declines in the UK wintering population for most species will largely be driven by broadscale declines affecting gull species across their range. The drivers of these declines include impact of existing and emergent disease (e.g. High Pathogenicity Avian Influenza, HPAI), changes in land use and agricultural practices, and reform in waste management and fisheries discards practices. However, some changes in wintering distribution across the flyway may also be occurring for some species and further investigation would be needed to confirm why this is the case.
12. Comparisons between autumn and winter roost counts suggest that numbers of two species (Mediterranean Gull and Lesser Black-backed Gull) are higher during autumn, whereas those of two species (Black-headed Gull and Common Gull) are higher during midwinter and one species (Herring Gull) has similar densities for the two time periods. These differences are consistent with those expected based on monthly WeBS counts and BirdTrack data, as well as our general understanding of the migratory dynamics of these species. For Great Black-backed Gull, numbers were higher at Coastal Sites during autumn but were higher at Inland Sites during midwinter.
13. Using 1% thresholds based on the new population estimates, a total of 54 sites have been identified which meet the thresholds of national importance for one or more wintering gull species (a total of 70 site/species combinations) including 10 that are listed in the advice and options in Phase 2 of the Third Special Protection Areas (SPA) review (Grady *et al.* 2025). Only one of these sites are already designated as an SPA for wintering gulls (Morecambe Bay & Duddon Estuary SPA). At one site (Solway Firth) an assemblage of over 20,000 roosting gulls was counted during autumn.
14. Whilst the survey methodology is considered robust and is consistent with the previous WinGS, there were a small number of observations of gulls roosting on rooftops. It would be prudent to undertake further investigation using tracking data and/or ground surveys prior to the next WinGS to assess whether the occurrence of rooftop roosts needs to be accounted for in the survey design of future surveys.

1. Background

The United Kingdom (UK) supports internationally important populations of gulls, both during the breeding (Burnell *et al.* 2023) and non-breeding seasons (Banks *et al.* 2009, Burton *et al.* 2013). The UK holds considerable proportions of breeding populations of some gull species, most notably 50–55% of the North Atlantic biogeographical population of Lesser Black-backed Gull *Larus fuscus* (Burnell *et al.* 2023). Consequently, over 30 Special Protection Areas (SPAs) classified in the UK include breeding gulls as features. The UK is also well recognised as an important wintering area for Europe's breeding gull populations (Wernham *et al.* 2002). Nevertheless, and in notable contrast to other waterbirds, few SPAs have previously been selected specifically for the protection of non-breeding gulls (Stroud *et al.* 2016, Grady *et al.* 2025). The importance of strengthening protection for gulls is further underlined by the fact that many of the gull species that winter in the UK are either Red-listed or Amber-listed in the latest UK Birds of Conservation Concern (Stanbury *et al.* 2024). Three species are currently listed with wintering declines as one of the qualifying criteria (Black-headed Gull *Chroicocephalus ridibundus*, Great Black-backed Gull *L. marinus* and Herring Gull *L. argentatus*).

The abundance and breeding success of breeding populations are monitored annually through the BTO/JNCC Seabird Monitoring Programme (SMP: **www.bto.org/smp**; Harris *et al.* 2024), while overall population estimates are produced through the periodic seabird censuses, most recently Seabirds Count (Burnell *et al.* 2023) updating results from the previous Seabird 2000 (Mitchell *et al.* 2004). Trends in non-breeding gull populations can be assessed through the BTO/RSPB/JNCC Wetland Bird Survey (WeBS: **www.bto.org/webs**). However, counting gulls is optional on WeBS and, even at sites where gulls are counted, WeBS counts most often take place during the day while gulls are widely dispersed at feeding locations. Consequently, WeBS data cannot be used to produce robust population estimates for gulls as counts provide too limited and variable coverage of overall populations. Bespoke survey methodologies are therefore required to accurately assess non-breeding gull populations, such as are employed for the Winter Gull (Roost) Survey (hereafter, WinGS; this acronym was first used for the 2003/04–2005/06 survey).

Previous WinGS have provided population estimates and site-level information for the five main wintering gull species in the UK: Black-headed Gull, Common Gull *L. canus*, Lesser Black-backed Gull, Herring Gull and Great Black-backed Gull. Survey efforts were decadal, from 1953 through to 2003/04–2005/06, with primary counts normally undertaken each winter in January, although the 1963 survey was postponed until December due to the severe winter in January 1963 (Burton *et al.* 2003, 2013).

The surveys up to and including 1993 were carried out in a single winter only and focused only on 'Key Sites', i.e. known large roost sites. However, the 2003/04–2005/06 WinGS included 'Sample Sites' in addition to the Key Sites and was run over multiple winters rather than a single winter, to ensure that sufficient levels of survey coverage could be achieved. This approach was again followed for the 2023/24–2024/25 survey, with fieldwork being spread over two winters.

Counts are undertaken at dusk as gulls congregate within evening roosts. The scope of WinGS has increased over time, with the first survey in 1953 covering only Inland Sites in England (Hickling 1954), and coverage of all UK countries and both Inland Sites and Coastal Sites first obtained in 1983 (Bowes *et al.* 1984). However, up until and including 1993, survey effort had been focused on known gull roosts and thus counts provided only minimum estimates of the overall populations of wintering gulls. To obtain complete estimates with confidence limits, the 2003/04–2005/06 WinGS sampled locations separate from Key Sites across both inland and coastal habitats (Banks *et al.* 2007, Burton *et al.* 2013).

Despite the need for regular information on wintering gulls for use in protected site designation and development of country-level Seabird Conservation Strategies, there have been no updated population estimates in the UK since 2003/04–2005/06 (Banks *et al.* 2007, Stroud *et al.* 2016). More recently, the need for updated information on winter gull populations and their distributions

has been highlighted as a knowledge gap in understanding the current High Pathogenicity Avian Influenza (HPAI) outbreak in wild birds across the country (Lean *et al.* 2024, Atkinson & Baillie 2025).

The 2023/24–2024/25 WinGS aimed to address the information gaps that have arisen since the last comprehensive survey and produce updated population estimates for the five main wintering gull species covered in previous surveys. In addition, population estimates for Mediterranean Gull *Ichthyaetus melanocephalus*, whose presence in the UK has increased substantially since the last survey, are produced for the first time. Based on the updated population estimates, the survey also aimed to derive new thresholds of national importance for Great Britain. Typically, a site holding at least 1% of the British or All-Ireland wintering population is deemed as of national importance for the species concerned (JNCC 1999). By determining realistic 1% thresholds for the six most abundant wintering gull species, nationally important sites can be identified. The survey also provides site-specific count information that can inform site condition monitoring.

Additionally, counts within autumn were undertaken for the first time. For some gull species, most notably Lesser Black-backed Gull, numbers of birds in the UK peak during the post-breeding period in late summer and early autumn (Frost *et al.* 2026). Monitoring gull roosts during this time aims to capture differences in species assemblages, abundances and distributions.

The full aims of the survey were as follows:

1. To produce updated population estimates.
2. Assessment of change since the last WinGS through the population estimates and a paired analysis.
3. Derivation of new thresholds for identifying sites of national importance.
4. Comparison of numbers and distributions between autumn and winter.

2. Methods

2.1. Coverage and field methods

WinGS in 2023/24–2024/25 was organised through the BTO's Regional Network with coverage of sites in all four constituent countries in the UK (England, Northern Ireland, Scotland and Wales), as well as in the Crown Dependencies of the Channel Islands and Isle of Man. Regional survey organisation was undertaken by volunteers (most of whom were WeBS Local Organisers or BTO Regional Organisers). Most counts were also undertaken by volunteers, though BTO field staff were employed to increase cover of some Key Sites and Sample Sites in less populated parts of the country. Both Inland Sites, including reservoirs, gravel pits and lakes, and Coastal Sites, including estuaries, harbours, islands and near-shore coastal waters, were covered. Counts and estimates thus refer to winter gull populations associated with land. The population estimates presented in this report may underestimate the total populations of each species as counts exclude gulls which may have roosted offshore, not visible from land, but still within UK Territorial Waters (i.e. 12 nautical miles from shore). However, the proportion of the wintering population roosting offshore is likely to be minor (O'Hanlon *et al.* 2022).

The survey followed the same field methodology as the 1953, 1963, 1973, 1983, 1993, and 2003/04–2005/06 winter gull surveys (Hickling 1954, 1967, 1977, Bowes *et al.* 1984, Burton *et al.* 2003, Banks *et al.* 2007). Observers were instructed to count or estimate the number of gulls at roosts at dusk during January, although supplementary counts from other months were also accepted. They were asked to arrive at sites approximately two hours before dusk to record birds already present, then count incoming birds to obtain the total number present at dusk, excluding any that departed beforehand. Counts of birds flying into roosts generally provide more accurate estimates than counts of birds already settled, particularly when gulls roost on choppy water (Burton *et al.* 2003). At larger roosts, especially on extensive estuaries, multiple observers were positioned to cover different flight lines simultaneously. Counts at individual sites may have underestimated total numbers if substantial arrivals occurred after dark; however, a pilot study preceding the 2003/04–2005/06 survey (Austin *et al.* 2003) and earlier observations by Shedden (1983) indicate that post-dusk movements to and from roosts are generally limited. Counts of gulls at roosts provide the best means to estimate total winter populations, as in contrast to the day when birds may be distributed widely across a variety of foraging habitats, roosting gulls tend to be restricted to wetland habitats (typically large inland waterbodies or coastal near-shore waters). Thus, sizable proportions of species' populations may be counted at a relatively few Key Sites. As in 2003/04–2005/06, however, the survey included Sample Sites in addition to the Key Sites, to enable more robust wintering population estimates to be produced.

To ensure counts were synchronised and reduce the possibility of either missing birds or double-counting due to movement of birds between different roosts from one evening to the next, a key visit date was set in each winter (19 January 2024 and 21 January 2025), and observers were asked to carry out visits as close as possible to this date. Synchronisation of counts was particularly important at larger Key Sites, where local movement of large numbers of gulls may occur from one night to the next due to factors such as weather, wind direction and disturbance. Local Organisers were asked to coordinate volunteers to ensure all counts across larger and adjacent Key Sites were carried out on the same evening wherever possible, with the site survey date taking precedence over the national key date where necessary.

In addition to winter visits, volunteers were also asked to carry out visits during autumn at the same survey sites and following the same methodology as for the winter counts. Autumn counts could be conducted during August, September and October 2024, but with an advertised key target visit date of 29 September 2024. Autumn counts could be carried out at either Key Sites or Sample Sites. Coverage of Key Sites was considered higher priority to enable paired comparison to be carried out between the autumn and winter counts at Key Sites, and capture autumn data for winter roosts to identify sites of national importance. As with the winter counts, local organisers coordinated volunteers at larger sites to ensure counts were synchronised and reduce the possibility of miscounting.

Survey organisation and data entry was supported through an online system and vacant sites map (Appendix 1). Survey instructions and data entry forms were available online and included a map of the site to be surveyed and recommended methods of counting gulls. Paper submission forms were also produced and available for use by counters (Appendix 2).

At some roosts, identification of individual species was not possible throughout the period of observation. In these cases, observers instead provided information on the numbers of unidentified 'small' gulls (Black-headed, Common and Mediterranean Gulls) and unidentified 'large' gulls (Lesser Black-backed, Herring and Great Black-backed Gulls) counted. If it was not possible to identify birds to species or place them into one of these size classes, birds were classified as 'unidentified gulls'. It is assumed that the numbers of species other than these six principal species that may have been present in these groupings were negligible.

2.2. Survey design

The survey design closely followed that of the 2003/04–2005/06 WinGS (Banks *et al.* 2007). Survey sites were split into four categories: Inland and Coastal Key Sites and Inland and Coastal Sample Sites.

2.2.1. Key Sites (Inland and Coastal)

Inland Key Sites and Coastal Key Sites were identified prior to the start of the survey as being particularly important for gulls on the basis that previous Winter Gull Roost Surveys (between 1953 and 2003/04–2005/06), or local knowledge received from the WinGS Regional Organisers, had shown that they had held significant numbers of roosting gulls (arbitrarily over 1,000 birds). Sample Sites counted in the previous WinGS which surpassed this threshold were also 'upgraded' to Key Sites and removed from the sample pool. A total of 611 Key Sites were identified, 300 Inland Sites and 311 Coastal Sites. If a Key Site was covered with sufficient completeness during the first winter surveys (2023/24), they were marked as low priority ahead of the second winter (2024/25) to encourage observers to prioritise visits to any remaining uncovered Key Sites or Sample Sites. A small number of SPAs were treated as high priority across both winters to encourage two years of complete roost counts. This was done to ensure robust data were available on the status of important wintering gull aggregations supported at these sites both to inform possible consideration of new designations for wintering gulls and to inform feature condition assessments (favourable/unfavourable) at SPAs where wintering gulls are currently qualifying features. Coastal Key Sites were divided into manageable sections that could ideally be covered by one or two observers, referred to as count level sectors. These divisions followed those used by observers during the previous WinGS. Inland Key Sites were generally divided into count level sectors based on distinct waterbodies or (usually for smaller waterbodies) by grouping two or more closely associated waterbodies. While supplementary counts across all sites were encouraged, they were not conducted as widely compared to the 2003/04–2005/06 WinGS.

2.2.2. Inland and coastal sampling

Sample Sites for winter gull roost surveys were first introduced during the 2003/04–2005/06 survey to estimate numbers of gulls roosting away from Key Sites. The 2023/24–2024/25 survey used the same set of sampling sites, with minor adjustments where previous midwinter roost counts indicated that some could now be classified as Key Sites. The stratification of Inland and Coastal Sample Sites followed the approach described by Banks *et al.* (2007).

Following the recommendations of Austin *et al.* (2003), a set of Inland Sample Sites, each representing a tetrad (2 × 2 km square area), was selected using a stratification based on land cover data from the CEH2000 dataset (Fuller *et al.* 2002) and coastal proximity. This stratification aimed to minimise the confidence intervals of resulting population estimates while ensuring that the full range of UK habitats was represented.

The inland stratification developed by Banks *et al.* (2007) used the CEH2000 dataset, which provides UK-wide habitat data at 1 km resolution. Freshwater cover within this dataset was used to classify tetrads into three categories: No Water (0%), Low Water (≤5%) and High Water (>5%).

While freshwater cover can change over time due to factors such as changing reservoir storage and flooded quarries, the proportional difference over time is minimal and was assumed to have negligible effects on the overall population estimates. Although modern datasets now provide land cover information at 10 m resolution (Morton *et al.* 2024), maintaining comparability with the previous survey was prioritised to ensure consistent long-term results.

Because gull numbers may differ between coastal and inland areas, tetrads were further classified by coastal proximity. A 1-km inland buffer was drawn along the coastline, and tetrads intersecting this buffer were classified as coastal, while those outside it were classified as inland.

The freshwater cover classification was then applied only to inland tetrads, resulting in three inland strata ('No Water', 'Low Water', and 'High Water') plus one coastal stratum. This resulted in four overall strata for targeting sampling effort at Inland Sample Sites. Tetrads containing Inland Key Sites were excluded from both the selection of Inland Sample Sites and the subsequent extrapolation from survey results. The distribution of UK tetrads across these strata (excluding Key Sites) is presented in Table 1, and Figure 1 (see Austin *et al.* 2003 for further details). In total, 797 Inland Sample Sites were selected for survey. This number differs from that used in the previous WinGS, as sites that exceeded 1,000 gulls in the earlier survey were reclassified as Inland Key Sites.

Table 1. Area (km²) distribution across the four-class stratification for Inland Sample Sites in the UK, Channel Islands and Isle of Man. Freshwater coverage is classified as None, Low and High based on the percentage coverage for the four 1-km grid squares comprising the tetrad as recorded in the CEH2000 Land Classification. Tetrads are defined as Inland, Coastal when they clip the boundary of a 1-km buffer inland from the coast. IN = Inland, No water; IL = Inland, Low Water (<=5%); IH = Inland, High Water (>5%); IC = Inland, Coastal.

Coastal/Inland	Inland Water Coverage	Area (km²)
(Coastal = tetrad within 1 km of the coast)	(From CEH2000)	-
Inland (IN)	None	225,763
Inland (IL)	Low (<=5%)	43,161
Inland (IH)	High (>5%)	9,366
Coastal (IC)	N/A	37,332

Coastal Sample Sites were selected at a regular interval along the coastline, forming a potential pseudorandom sample of 985 coastal stretches. Volunteers were asked to choose a suitable vantage point as close as possible to central grid references to undertake counts; they then provided boundaries of their chosen count sectors on a map.

Sites were also further split into 13 regions – North and West Scotland, East Scotland, South-west Scotland, North-west England, North-east England, Wales, the Midlands, East Anglia, South-west England, South-east England, Northern Ireland, Isle of Man and Channel Islands (Figure 2).

For the purposes of analyses, the coast outwith covered Key Sites was divided into two strata – one equating to coastlines that were associated with Coastal Key Sites during the 2003/04–2005/06 survey (e.g. within the same estuary or SPA) but which were not covered as part of the Key Sites, and the other the remaining coast outwith this. This differentiation aims to account for the possibility that the presence of nearby key roosts could affect gull densities.

Figure 1. Distribution of all tetrads (2 x 2 km squares) in the UK, Channel Islands and Isle of Man across the four-class stratification for Inland Samples Sites. This stratification was derived by overlaying the two layers of information representing freshwater cover and coastal proximity (see Banks *et al.* 2007). Orange = Coastal, Dark Blue = Inland, High Water, Light Blue = Inland, Low Water and Green = Inland, No Water. The frequency distribution of tetrads across the stratification is provided in Table 1.

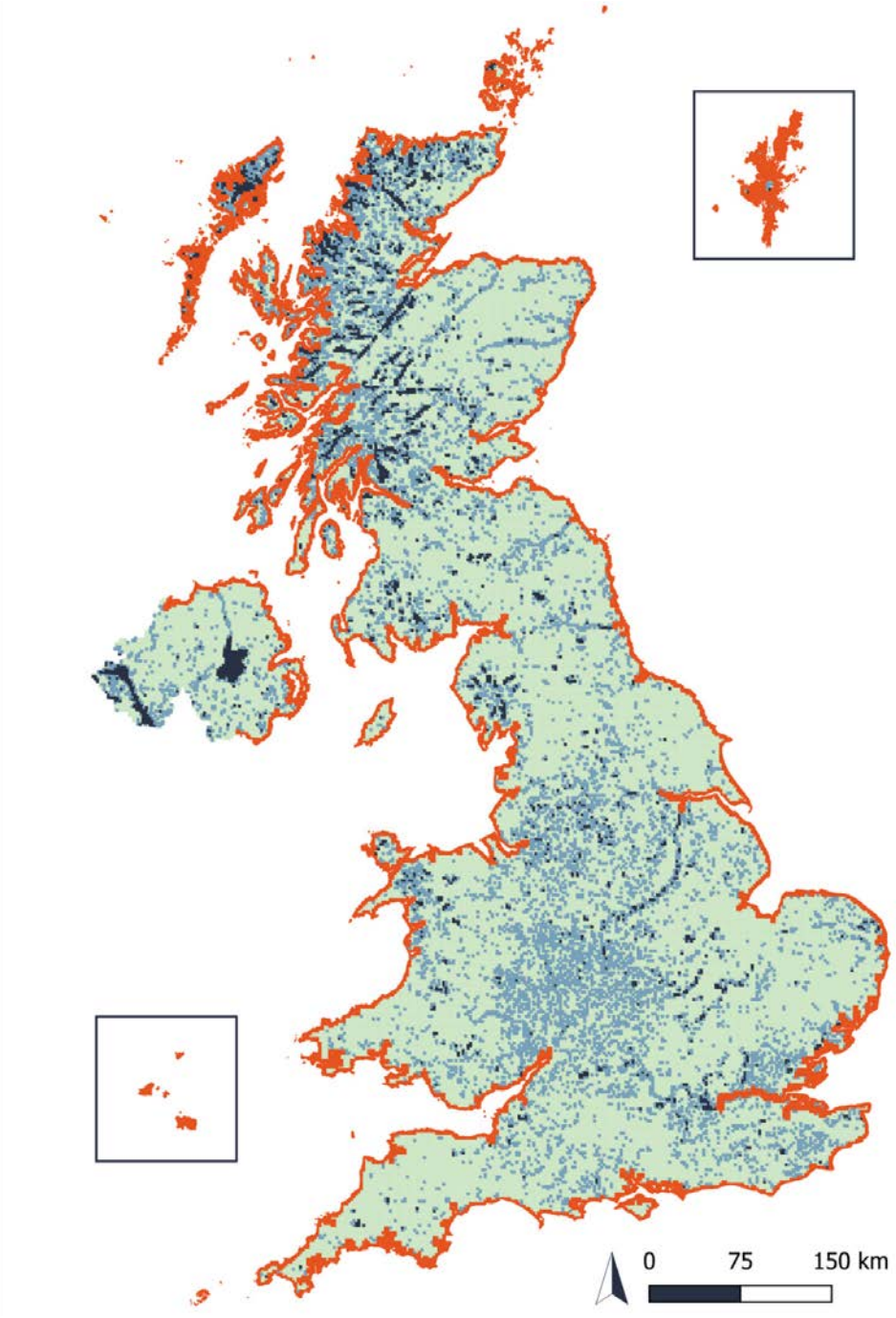
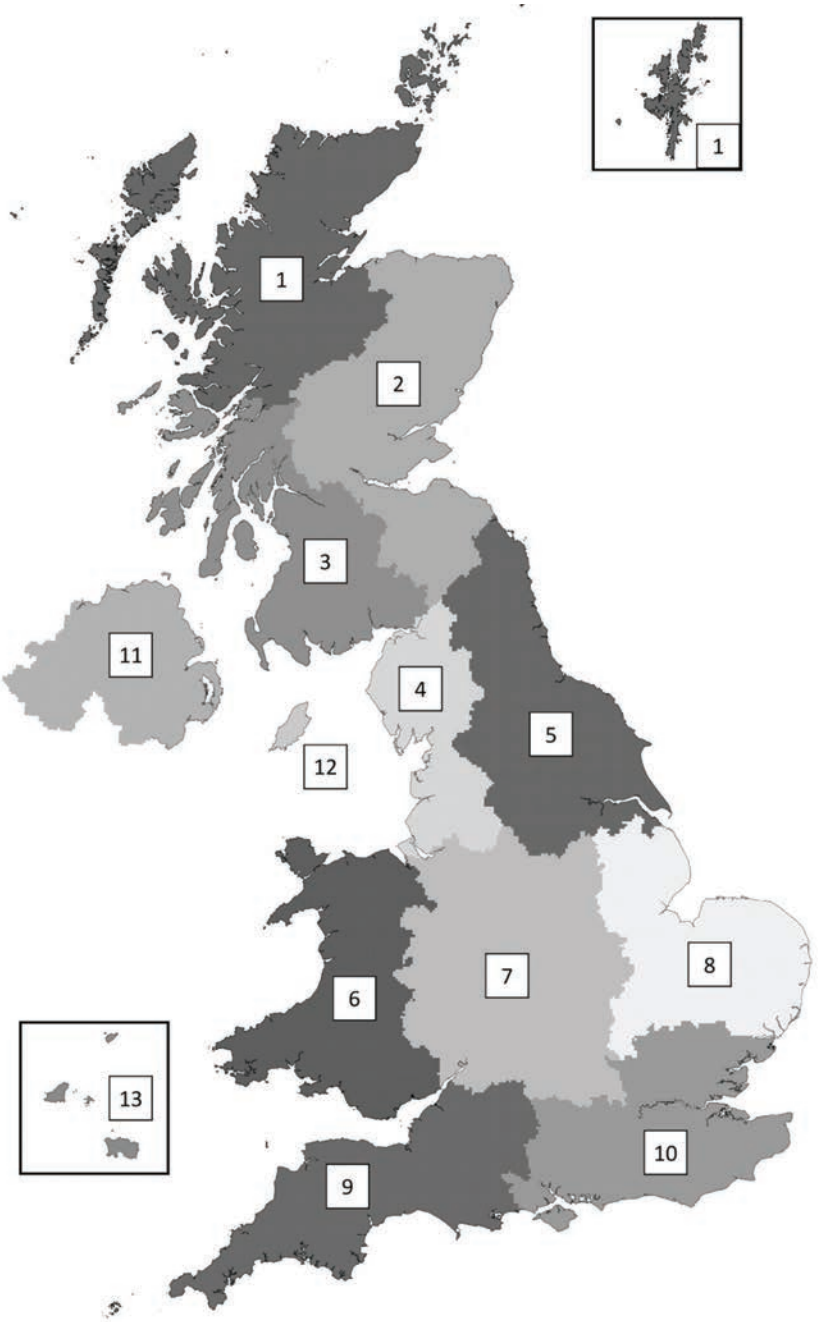


Figure 2. Regions used in analysis: 1 = North and West Scotland; 2 = East Scotland; 3 = South-west Scotland; 4 = North-west England; 5 = North-east England; 6 = Wales; 7 = Midlands; 8 = East Anglia; 9 = South-west England; 10 = South-east England; 11 = Northern Ireland; 12 = Isle of Man; 13 = Channel Islands.



2.3. Data analysis

2.3.1. Population estimates and thresholds

The 2023/24–2024/25 survey used the same analytical methodology for producing population estimates and thresholds that was followed by the 2003/04–2005/06 survey, with a few minor changes. The most notable of these changes being the addition of Mediterranean Gull to the list of species for which population estimates were produced and hence this was included as a 'small gull species' for the purpose of allocating unidentified gulls to species. The method for the 2003/04–2005/06 survey has been previously described by Banks *et al.* (2007) and is repeated below, highlighting methodological updates and changes.

For the purposes of calculating winter population estimates, only counts undertaken between December and February, either in the evening as gulls arrived at roosts or in the morning as gulls departed (which was one survey only), were retained for analysis. Supplementary counts, either from different dates or different times of day, were excluded. It is assumed throughout that counts at different sites were mutually exclusive. Targeting a single weekend in January in each year for coverage of Key Sites promoted synchronicity of these counts and avoided repeat counting of the same birds at the most important and densely populated sites. Where multiple counts at sites existed, the count nearest to the target date was selected as the main count for analysis.

Population sizes for each of the six principal species were estimated using bootstrap techniques, as has proven successful for estimating national and regional populations of other waterbird species (e.g. Jackson *et al.* 2006, Austin *et al.* 2017, Humphreys *et al.* 2020). With 999 repetitions, separate estimates were made of the total population size in each country or Crown Dependency (i.e. England, Wales, Scotland, Great Britain, Northern Ireland, the Isle of Man and the Channel Islands). Each of these overall estimates was obtained by summation of the total number of individuals recorded across all Key Sites and the estimates for each stratum represented in each region contributing or equating to the country or Crown Dependency in question. The latter were derived for each stratum by taking a random sample with replacement from the survey data (Inland Sample Sites and Coastal Sample Sites) for the given stratum until the cumulative land area (for inland strata) or coastal length (for coastal strata) equated to the total for the entire country or dependency assigned to that stratum outwith the Key Sites for which counts were received (Figure 3). A bootstrap was run for each region, results for Great Britain were obtained by summing the relevant unordered regional bootstrap outputs (i.e. those for England, Scotland and Wales). The 500th, 25th and 974th quantiles of the ascendant-ordered bootstrap estimates were used to estimate respectively the median and lower and upper 95% confidence limits for the population for each of the four countries, two Crown Dependencies and Great Britain.

Inland and Coastal Key sectors that were not counted in either survey year were included within the total inland area and total coastal length used for population estimation calculations. The area estimate for these areas has increased in comparison to the previous survey as previously, surveyors counted Key Sites within a 'tetrad' framework due to the limitations of GIS and difficulty in accurate area calculations. This meant that surveyors were asked to survey both the key waterbodies as well as the surrounding area in the tetrads that they intersected. This time, surveyors were asked to target the waterbody directly with no survey of the surrounding tetrad taking place. Previously this area was taken out of the area estimated for, but it is included in the total area this time.

Data for both the Key and Sample Sites frequently included counts of unidentified gulls. During each repetition, a unique estimate was made for each region of the proportion of positively identified gulls known to belong to the species in question. Each estimate of this proportion was obtained by drawing a random sample with replacement of 100 (arbitrarily chosen as a large number relative to the average number of samples representing each stratum) from all Key and Sample Sites within the appropriate region. This was done separately for Inland and Coastal Sites but otherwise without regard for strata. These estimates were then used to derive adjusted counts (C_{adj}) to include the total positively identified as the species in question (C) and an expected number of the species that had been recorded as either 'small gulls' (summing across species and calculating the proportion of this

total belonging to the species in question (E_{small}) or 'unidentified' ($E_{unidentified}$) in the case of Black-headed, Mediterranean and Common Gull, or 'large gulls' (E_{large}) or 'unidentified' for the other three principal species. i.e.:

for Black-headed, Mediterranean and Common Gull:

$$C_{adj} = C + E_{small} + E_{unidentified}$$

and for Herring, Lesser Black-backed and Great Black backed Gull

$$C_{adj} = C + E_{large} + E_{unidentified}$$

where E_{small}, E_{large} & $E_{unidentified}$ are estimated from the sample with replacement as follows:

E_{small} = small × $\Sigma C / \Sigma$ (counts for all positively identified small gulls)

E_{large} = large × $\Sigma C / \Sigma$ (counts for all positively identified large gulls)

$E_{unidentified}$ = unidentified × $(\Sigma C + \Sigma E_{small}) / \Sigma$ (counts for all gulls identified to species or size-class)

or

$E_{unidentified}$ = unidentified × $(\Sigma C + \Sigma E_{large}) / \Sigma$ (counts for all gulls identified to species or size-class)

Population estimates were only calculated for the six principal species that winter in the UK. Raw totals are also presented for other species, though given the small numbers counted, it was not appropriate to provide extrapolated estimates.

To avoid understating the variability from unidentified gulls at Key Sites, the estimation procedure described above (for assigning unidentified gulls to species) was incorporated into a 999-iteration bootstrap. For each iteration, region-specific proportions of positively identified birds belonging to the species of interest were calculated and used to generate adjusted counts (C_{adj}). This produced a distribution of possible C_{adj} values resulting in wider confidence intervals which better reflect the uncertainty associated with Key Site estimates due to unidentified gulls. This represents a methodological change from the previous WinGS analysis. More complete Sample Site coverage in the previous WinGS minimised variability of counts. However, reduced coverage for the current survey increases uncertainty, making the incorporation of this bootstrapped variability important.

The population estimates calculated for Great Britain were used to calculate thresholds – rounded-up 1% levels of the estimates – so that sites of national importance for each species might be identified in future.

2.3.2. Counts at individual sites

As a major contribution to the identification of sites of importance for wintering gulls, a provisional list is drawn up using peak counts from each winter for each site. Where supplementary data exist within or across winters, they are included in the table where appropriate (i.e. the peak values shown in the site table will include some counts which were not used in the analyses to produce population estimates). Estuaries are treated as discrete sites without subdivision in this analysis (to better enable comparison with previous surveys and to provide a reasonable match to the delimitation of protected sites).

We also list those sites which support an assemblage of at least 20,000 roosting gulls and thus might be deemed to be of international importance through the application of this measure alone (see Stroud *et al.* 2001).

The site tables include all sites for each species where at least one WinGS count exceeded the new 1% thresholds which are based on the updated population estimates. This allows sites with one or more counts exceeding the national importance thresholds for each species to be identified. However, before firmly qualifying the status of these sites, it is important to understand the variation inherent in counts of gulls at roost sites and how many counts might be needed to achieve a representative estimate of the numbers using a site within a given period.

2.3.3. Paired comparison between 2023/24–2024/25 and 2003/04–2005/06 winter counts

A paired comparison was carried out using 701 Key Site sectors and 234 Sample Site sectors for which non-zero counts were available for both of the two most recent WinGS surveys. Of the Sample Site sectors, 45 were Inland and 189 were Coastal. Of the Key Site sectors, 233 were Inland and 468 were Coastal. This analysis makes a direct assessment of the changes in numbers at only those site sectors which were visited in both surveys, and non-zero data were available for the assessed species in at least one survey. This contrasts with any comparisons made between the population estimates from the two surveys, which are based on the full set of survey sites and hence in each survey will include some sites which were not covered by the other survey. Changes detected using this method of analysis therefore reflect differences in densities at occupied sites between the two surveys which may differ in magnitude from changes detected using population estimate methods. Differences in the occurrence of habitats between the population estimate and the pairwise dataset are summarised in Table 2.

In order to ensure comparability of site counts between the 2023/24–2024/25 and 2003/04–2005/06 surveys, a site-level estimate of total counts for a species was made to account for any unidentified birds counted. This was necessary due to the uneven proportion of unidentified birds between each survey with 20% of the raw counts of birds being unidentified previously and 10% unidentified in the current survey. The calculation above (see section 2.3.1.) was adapted to produce a site-level estimate based on the number of unidentified birds within the site and apply it back proportionally to the site count based on the regional proportion of positively identified gulls, calculated within each bootstrap iteration by taking a subset of 100 sites within the same region. The paired comparison models were then fitted across bootstrap iterations (250).

Generalized linear mixed models (GLMMs) with negative binomial errors were used to assess changes in gull numbers recorded at count-level sites that were surveyed in both 2023/24–2024/25 and 2003/04–2005/06. Negative binomial error structures were specified by species, based on *DHARMa* diagnostics (Hartig 2016), with either nbinom1 or nbinom2 parameterisations applied as appropriate. Zero-inflation was assessed using *DHARMa*, and model selection indicated that a zero-inflation component was not required; consequently, models were fitted without a zero-inflation term (zi = ~0). Where overdispersion was evident, the selected negative binomial structure remained appropriate.

One model was fitted for each species using maximum likelihood estimation in R (R Core Team 2024, version 4.4.2) as implemented in the *glmmTMB* package (version 1.113; Brooks *et al.* 2017). Each model included survey (2023/24–2024/25 or 2003/04–2005/06), habitat (coastal or inland) and country as categorical fixed effects. An interaction was included between survey and country, and survey and habitat. An effort variable was derived using site length or area (to control for variation in effort due to the spatial extent of counts in coastal and inland strata, respectively). An interaction between habitat and effort was also included in the model to account for the differences in the relationship between effort and count along both the habitats. Count-level sector code was included as a random term to account for repeated measures at the same sites. One set of models was constructed to evaluate changes at country level for each of the key gull species. Models were fitted within each bootstrap iteration using observation-level weights based on the proportion of the strata within the wider landscape, based dataset which the population estimates were produced with. This was implemented to control for bias within the paired analysis dataset. As Key Sites were treated as 'census' data, data from these sites were weighted as 1.

Table 2a.–d. Comparison of site representation in the population estimate and pairwise datasets. The relative proportions of Coastal Sites and Inland Sites are similar between datasets, indicating that the reduced pairwise dataset retains a comparable distribution of site types. The population estimate dataset has been filtered for sites that contain non-zero data for each species. Where unidentified gulls were present, the site has been added to the count for all species of the relevant size classes. Note that in some cases the number of pairwise sites is greater than non-zero population estimate sites. This is due to the inclusion of sites within the pairwise dataset for which zero counts were made in the 2023/24–2024/25 survey, and non-zero counts were made in the 2003/04–2005/06 survey.

a. England

	Inland comparison						Coastal comparison					
	Pairwise			Population estimate			Pairwise			Population estimate		
Species	Sites included	Total sites	Proportion	Non-zero sites	Total non-zero sites	Proportion	Sites included	Total sites	Proportion	Non-zero sites	Total non-zero sites	Proportion
Black-headed Gull	195	513	0.38	202	491	0.41	318	513	0.62	289	491	0.59
Common Gull	164	434	0.38	157	383	0.41	270	434	0.62	226	383	0.59
Mediterranean Gull	62	190	0.33	54	163	0.33	128	190	0.67	109	163	0.67
Lesser Black-backed Gull	154	367	0.42	147	310	0.47	213	367	0.58	163	310	0.53
Herring Gull	181	506	0.36	181	498	0.36	325	506	0.64	317	498	0.64
Great Black-backed Gull	138	411	0.34	111	344	0.32	273	411	0.66	233	344	0.68

Table 2a.–d. Comparison of site representation in the population estimate and pairwise datasets. The relative proportions of Coastal Sites and Inland Sites are similar between datasets, indicating that the reduced pairwise dataset retains a comparable distribution of site types. The population estimate dataset has been filtered for sites that contain non-zero data for each species. Where unidentified gulls were present, the site has been added to the count for all species of the relevant size classes. Note that in some cases the number of pairwise sites is greater than non-zero population estimate sites. This is due to the inclusion of sites within the pairwise dataset for which zero counts were made in the 2023/24–2024/25 survey, and non-zero counts were made in the 2003/04–2005/06 survey.

b. Scotland

	Inland comparison						Coastal comparison					
	Pairwise			Population estimate			Pairwise			Population estimate		
Species	Sites included	Total sites	Proportion	Non-zero sites	Total non-zero sites	Proportion	Sites included	Total sites	Proportion	Non-zero sites	Total non-zero sites	Proportion
Black-headed Gull	28	153	0.18	19	137	0.14	125	153	0.82	118	137	0.86
Common Gull	29	151	0.19	25	152	0.16	122	151	0.81	127	152	0.84
Mediterranean Gull	21	138	0.15	4	40	0.10	117	138	0.85	36	40	0.90
Lesser Black-backed Gull	24	176	0.14	7	63	0.11	152	176	0.86	56	63	0.89
Herring Gull	14	68	0.21	19	199	0.10	54	68	0.79	180	199	0.90
Great Black-backed Gull	2	20	0.10	14	141	0.10	18	20	0.90	127	141	0.90

Table 2a.–d. Comparison of site representation in the population estimate and pairwise datasets. The relative proportions of Coastal Sites and Inland Sites are similar between datasets, indicating that the reduced pairwise dataset retains a comparable distribution of site types. The population estimate dataset has been filtered for sites that contain non-zero data for each species. Where unidentified gulls were present, the site has been added to the count for all species of the relevant size classes. Note that in some cases the number of pairwise sites is greater than non-zero population estimate sites. This is due to the inclusion of sites within the pairwise dataset for which zero counts were made in the 2023/24–2024/25 survey, and non-zero counts were made in the 2003/04–2005/06 survey.

c. Wales

	Inland comparison						Coastal comparison					
	Pairwise			Population estimate			Pairwise			Population estimate		
Species	Sites included	Total sites	Proportion	Non-zero sites	Total non-zero sites	Proportion	Sites included	Total sites	Proportion	Non-zero Sites	Total non-zero sites	Proportion
Black-headed Gull	8	100	0.08	7	87	0.08	92	100	0.92	80	87	0.92
Common Gull	3	76	0.04	4	62	0.06	73	76	0.96	58	62	0.94
Mediterranean Gull	7	90	0.08	2	32	0.06	83	90	0.92	30	32	0.94
Lesser Black-backed Gull	9	115	0.08	7	69	0.10	106	115	0.92	62	69	0.90
Herring Gull	7	80	0.09	8	120	0.07	73	80	0.91	112	120	0.93
Great Black-backed Gull	2	35	0.06	8	87	0.09	33	35	0.94	79	87	0.91

Table 2a.–d. Comparison of site representation in the population estimate and pairwise datasets. The relative proportions of Coastal Sites and Inland Sites are similar between datasets, indicating that the reduced pairwise dataset retains a comparable distribution of site types. The population estimate dataset has been filtered for sites that contain non-zero data for each species. Where unidentified gulls were present, the site has been added to the count for all species of the relevant size classes. Note that in some cases the number of pairwise sites is greater than non-zero population estimate sites. This is due to the inclusion of sites within the pairwise dataset for which zero counts were made in the 2023/24–2024/25 survey, and non-zero counts were made in the 2003/04–2005/06 survey.

d. Northern Ireland

	Inland comparison						Coastal comparison					
	Pairwise			Population estimate			Pairwise			Population estimate		
Species	Sites included	Total sites	Proportion	Non-zero sites	Total non-zero sites	Proportion	Sites included	Total sites	Proportion	Non-zero Sites	Total non-zero sites	Proportion
Black-headed Gull	15	46	0.33	15	37	0.41	31	46	0.67	22	37	0.59
Common Gull	8	37	0.22	8	27	0.30	29	37	0.78	19	27	0.70
Mediterranean Gull	N/A	N/A	N/A	2	6	0.33	N/A	N/A	N/A	4	6	0.67
Lesser Black-backed Gull	7	25	0.28	9	15	0.60	18	25	0.72	6	15	0.40
Herring Gull	10	43	0.23	10	40	0.25	33	43	0.77	30	40	0.75
Great Black-backed Gull	7	14	0.50	8	25	0.32	7	14	0.50	17	25	0.68

The general model structure was:

```
EST ~ SURVEY + COUNTRY + HABITAT +
  SURVEY:COUNTRY + SURVEY:HABITAT + COUNTRY:HABITAT +
  HABITAT:log(effort_value) + (1|unique_id)
```

Where EST is the integer-rounded estimated total count of the focal species at a site, SURVEY identifies the survey period (2003/04–2005/06 or 2023/24–2024/25), and effort is a variable representing the survey effort using the length or area of a site. HABITAT is a factor representing Inland Sites or Coastal Sites. COUNTRY is a factor including each country included in the dataset and unique_id is the unique code attributed to each count sector.

For UK and GB level comparisons, the country term was removed from the model:

```
EST ~ SURVEY + HABITAT +
  SURVEY:HABITAT +
  HABITAT:log(effort_value) + (1|unique_id)
```

From the best model for each species, estimated marginal means were derived using the *emmeans* package (Lenth 2025, version 1.118). Predicted mean densities (birds per km² or birds per km for the inland and coastal strata, respectively) were obtained for each country × survey x habitat combination, back-transformed to the response scale (type = 'response') and adjusted for an offset equivalent to 10 units of surveyed area/length.

This followed the formula:

```
emmeans(Species Model, ~ SURVEY | COUNTRY * HABITAT,
    type = 'response', at = list (effort_value = 10)
```

Pairwise contrasts between survey periods were computed using reverse pairwise comparisons within each habitat (and country where relevant), producing ratios of predicted densities between 2023/24–2024/25 and 2003/04–2005/06, from which change estimates could be derived.

For each species and stratum, bootstrap distributions of density ratios were summarised by calculating the mean ratio, 2.5% and 97.5% quantiles, and a two-sided bootstrap probability (p_boot), defined as twice the smaller of the proportions of bootstrap ratios greater than or less than one.

In addition to habitat-specific contrasts, overall changes were calculated by combining habitat-specific log-ratios using species-specific habitat proportions derived from independent population estimates (Table 3). Habitat-specific log(ratio) values were weighted by the median proportional contribution of each habitat and summed, before back-transformation to obtain an overall density ratio. This procedure was applied at GB, UK and country levels as appropriate.

Although every effort was made to ensure comparability between the two winter gull surveys, differences in coverage and habitat distribution between years may still influence estimates of population change. Therefore, results are presented as rates of changes in predicted densities (birds per 10 km or birds per 10 km^2 for the coastal and inland strata, respectively) at the count sector level, providing the most robust basis for comparing relative abundance between the two survey periods.

Table 3. The proportional occurrence of estimates populations for each species within habitats across the UK, used to weight comparison models over both inland and coastal habitats.

Species	Proportion of population estimated on inland	Proportion of population estimated on coastal
Black-headed Gull	0.430	0.570
Common Gull	0.296	0.704
Mediterranean Gull	0.012	0.988
Lesser Black-backed Gull	0.580	0.420
Herring Gull	0.200	0.800
Great Black-backed Gull	0.135	0.865

2.3.4. Paired comparison of autumn count and winter counts

Previous WinGS surveys have focused primarily on assessing the wintering gull population, with January as the standard survey period. While this remained the key objective for the 2023/24–2024/25 survey, a secondary aim was to quantify gull numbers present at roosts during the autumn and to compare these with winter counts across different species.

Paired comparisons of autumn and winter gull counts were conducted using data from 467 site sectors where both autumn and winter surveys were completed. These comprised 150 Sample Site and 317 Key Site count level sectors, distributed across all major UK regions. Of the Key Site level sectors, 132 were Inland Sites and 185 were Coastal Sites. Of Sample Sites, 55 were Inland Sites and 95 were Coastal Sites. As above, comparisons were made after an estimate for any unidentified gulls was added to gull totals on the site-level.

Autumn counts were available from all 13 regions. The most comprehensive regional coverage occurred in Wales (63 sectors), South-east England (66), and the Midlands (38), corresponding to areas with dense observer networks and a concentration of large gull roosts. Limited but strategically important coverage was achieved in Scotland and Northern Ireland.

To account for uncertainty associated with unidentified gulls, a bootstrap-based reallocation procedure was implemented. For sites without unidentified individuals, observed counts were retained directly. For sites containing unidentified gulls, counts were redistributed across species using a resampling approach within region × habitat strata. For each bootstrap iteration (250 iterations), regional samples were drawn with replacement and a species allocation function applied to generate species-specific estimates. This procedure was applied separately to autumn and winter data prior to modelling. Only sites present in both seasons were retained post-bootstrap.

To assess seasonal differences in gull numbers, GLMMs with negative binomial errors were fitted using the *glmmTMB* package (Brooks *et al.* 2017) in R (R Core Team 2024, version 4.4.2). Separate models were fitted for each species using maximum likelihood estimation. Each model included season (autumn/winter) habitat and country as fixed effects with interactions, with site identity fitted as a random effect to account for repeated sampling of the same locations across seasons. A logged effort variable, based on site length or area, was added to account for survey effort within each habitat type. Observations within models were weighted based on strata occurrence within the wider landscape. Model formulas followed the same structure as described for 2023/24–2024/25 and 2003/04–2005/06 comparisons above (section 2.3.3).

Estimated marginal means were obtained on the response scale (standardised to effort_value = 10 km^2 or 10 km for the inland and coastal strata, respectively) using the *emmeans* package. Seasonal contrasts (winter vs autumn) were calculated within each habitat and country combination.

Bootstrapped contrast estimates were saved per iteration and summarised across bootstrap replicates to derive mean ratios, 95% percentile intervals (2.5% and 97.5%), and bootstrap-based two-sided p-values.

For overall summaries combining data from inland and coastal habitats, habitat-specific seasonal ratios were additionally combined using externally derived habitat population proportions, producing weighted overall seasonal change estimates.

It should be noted that this report does not attempt to produce autumn population estimates for two principal reasons. (1) High turnover of individuals: many gulls are migratory and are on passage during autumn, resulting in continual movement of different individuals through the UK. This transience makes it difficult to define or estimate a total autumn 'population'. (2) Limited seasonal coverage: counts were available from only a single autumn, meaning that coverage across Key Sites and Sample Sites was insufficient to support robust population-level extrapolation.

For each species, results therefore represent model-based relative changes in predicted mean density between autumn and winter 2023/24–2024/25, standardised for effort and accounting for site-level variability and uncertainty in species identification.

3. Results

3.1. Winter 2023/24–2024/25 coverage

Coverage in the 2023/24–2024/25 survey was high, with 81% of Key Sites surveyed compared to 90% in 2003/04–2005/06, although the coverage in 2023/24–2024/25 was achieved across a larger and more comprehensive network of sites. For Sample Sites, inland coverage reached 52% of the targeted area, comparable in extent to the previous survey where 75% of inland tetrads were visited, though in both cases this represented a small proportion of the total inland area due to the dominance of low- and no-water habitats. Coverage of high-water strata remained consistent between surveys. Coastal coverage improved from 8.6% of total sample coastline covered in 2003/04–2005/06 (Banks *et al.* 2007) to 17.84% for the current survey.

3.1.1. Coverage of Key Sites

Coverage of Key Sites was high, with 81% of sites covered across the two winters, with slightly higher coverage of Coastal Key Sites compared to Inland Key Sites (82% and 81% respectively) (Table 4).

Table 4. Key Site coverage split by analysis region. Note that where Key Sites exist across region boundaries, they have been treated separately within the region category but combined for the total percentage coverage calculation.

Region	Habitat	Total Key Sites	Covered Key Sites	Percentage
East Anglia	Inland	33	30	90.91%
	Coastal	22	20	90.91%
North-east England	Inland	53	43	81.13%
	Coastal	29	24	82.76%
North-west England	Inland	24	19	79.17%
	Coastal	18	17	94.44%
Midlands	Inland	83	54	65.06%
	Coastal	4	4	100.00%
South-east England	Inland	34	27	79.41%
	Coastal	42	37	88.10%
South-west England	Inland	19	17	89.47%
	Coastal	42	30	71.43%
Northern Ireland	Inland	1	1	100.00%
	Coastal	16	9	56.25%
North-west Scotland	Inland	3	2	66.67%
	Coastal	17	13	76.47%
South-west Scotland	Inland	11	10	90.91%
	Coastal	19	14	73.68%
East Scotland	Inland	28	25	89.29%
	Coastal	46	39	84.78%
Wales	Inland	14	12	85.71%
	Coastal	53	44	83.02%
Channel Islands	Inland	2	1	50.00%
	Coastal	4	3	75.00%
Isle of Man	Inland	1	1	100.00%
	Coastal	4	1	25.00%
	Total	**611**	**497**	**81.34%**

3.1.2. Coverage of Inland Sample Sites

Coverage of Inland Sample Sites varied substantially among regions and strata (Table 5). Across all regions, 134,003 ha (0.55%) of the total inland area of 24.54 million ha was covered by surveys, equating to 52% of the area targeted by Sample Sites, with assumed zero counts included (Table 6). Coverage was generally higher in Inland High Water (IH) strata, reflecting observer focus on inland tetrads that were more likely to support roosting gulls. However, as no surveyed IN tetrads held any counts of roosting gulls and the habitat covered was not likely to support wintering gulls, for the purposes of analyses, zero counts were assumed for all other IN tetrads. Thus, the low coverage of this habitat type is not considered to impact the overall population estimate.

Coverage of Inland Low (IL) strata was moderate overall (typically 0.3–1.3%), with relatively higher sampling in South-west (1.05%) and East Scotland (0.48%). There was variable coverage for Inland Coastal (IC) tetrads, up to over 2% in Northern Ireland (1.19%) and East Scotland (0.88%).

Table 5. Coverage of all UK Inland Sample Sites (Tetrads) by stratum. IC = inland coastal tetrads (i.e. those tetrads that clip the boundary of a 1-km buffer inland from the coast). IH = inland tetrads with high water coverage; IL = inland tetrads with low water coverage; IN = inland tetrads with no water coverage. Note that this table includes sites that were added to the dataset as 'assumed zeros' either due to the nature of the habitat or through notification from individuals with local knowledge.

Region	Stratum	Total inland area (ha)	Area covered (ha)	Sampled (%)
East Anglia	IC	118,175	321	0.27
	IH	26,400	400	1.52
	IL	213,200	800	0.38
	IN	1,616,800	5,600	0.35
North-east England	IC	137,907	867	0.63
	IH	40,000	1,200	3.00
	IL	328,800	800	0.24
	IN	1,896,800	8,400	0.44
North-west England	IC	131,351	1,011	0.77
	IH	37,600	2,400	6.38
	IL	186,800	800	0.43
	IN	826,400	4,800	0.58
Midlands	IC	31,228	0	0.00
	IH	71,200	5,200	7.30
	IL	1,008,400	2,000	0.20
	IN	2,107,600	8,800	0.42
South-east England	IC	272,631	2,686	0.99
	IH	38,400	4,800	12.50
	IL	383,600	2,000	0.52
	IN	1,460,400	5,200	0.36
South-west England	IC	275,924	2,478	0.90
	IH	14,000	1,200	8.57
	IL	191,200	2,000	1.05
	IN	1,640,800	6,400	0.39

Table 5 continued

Region	Stratum	Total inland area (ha)	Area covered (ha)	Sampled (%)
Northern Ireland	IC	114,097	1,353	1.19
	IH	111,784	2,803	2.51
	IL	207,116	2,003	0.97
	IN	1,036,563	10,010	0.97
North-west Scotland	IC	950,004	1,881	0.20
	IH	330,000	4,800	1.45
	IL	664,000	800	0.12
	IN	1,200,400	3,600	0.30
South-west Scotland	IC	489,628	2,847	0.58
	IH	92,000	2,400	2.61
	IL	325,600	2,400	0.74
	IN	1,119,600	5,600	0.50
East Scotland	IC	172,354	1,516	0.88
	IH	96,800	3,600	3.72
	IL	413,600	2,000	0.48
	IN	2,028,400	7,600	0.37
Wales	IC	271,257	1,427	0.53
	IH	36,800	1,200	3.26
	IL	274,400	800	0.29
	IN	1,492,800	4,000	0.27
Isle of Man	IC	23,761	0	0.00
	IH	400	0	0.00
	IL	2,400	400	16.67
	IN	30,800	800	2.60
TOTAL		**24,540,180**	**134,003**	**0.55**

Table 6. Coverage of targeted Inland Sample Sites by stratum. IN = inland tetrads with no freshwater; IL = inland tetrads with low freshwater coverage; IH= inland tetrads with high freshwater coverage; IC = inland coastal tetrads (i.e. those tetrads that clip the boundary of a 1-km buffer inland from the coast).

Stratum	Target Area (ha)	Area covered (ha)	Sampled (%)
IC	48,289	16,386	33.93
IH	67,207	30,003	44.64
IL	70,809	16,803	23.73
IN	70,809	70,809	100*
TOTAL	**257,114**	**134,003**	**52.12**

*31% counted, the remainder assumed to be zero.

3.1.3. Coverage of Coastal Sample Sites

Coverage of Coastal Sample Sites was variable among regions and strata (Table 7). A total of 22,565 km of coastline was identified, of which 4,026 km (17.84%) was covered by sample surveys. Coverage was generally higher for Coastal Sample (CS) stretches (with an average of 22%) than for Coastal Key (CK) stretches (mean 15%).

Table 7. Coverage of Key Site coverage split by analysis region.

Region	Stratum	Total length of coast (km)	Length covered (km)	Sampled (%)
East Anglia	CK	193.64	31.10	16.06
	CS	507.19	290.82	57.34
North-east England	CK	333.76	20.15	6.04
	CS	478.19	167.17	34.96
North-west England	CK	427.42	32.48	7.60
	CS	375.50	296.49	78.96
Midlands	CK	56.41	20.82	36.90
	CS	121.81	99.76	81.90
South-east England	CK	867.68	163.77	18.87
	CS	1,063.36	202.53	19.05
South-west England	CK	431.81	101.86	23.59
	CS	1,545.21	370.51	23.98
Northern Ireland	CK	233.96	13.77	5.89
	CS	488.20	138.59	28.39
North-west Scotland	CK	71.84	12.07	16.80
	CS	8,741.13	436.81	5.00
South-west Scotland	CK	161.49	31.51	19.51
	CS	3,306.92	329.65	9.97
East Scotland	CK	275.68	71.30	25.86
	CS	790.14	436.81	55.28
Wales	CK	340.94	69.14	20.28
	CS	1,434.33	651.37	45.41
Channel Islands	CK	18.67	4.97	26.61
	CS	140.79	25.1	17.83
Isle of Man	CK	19.38	0.00	0.00
	CS	139.87	27.16	19.41
TOTAL		**22,565.32**	**4,025.88**	**17.84**

The highest proportional coverage of CK stretches occurred in the Midlands (36.9%), Channel Islands (26.6%) and East Scotland (25.9%), whereas the lowest coverage was in Northern Ireland (5.9%). For CS stretches, coverage was greatest in the Midlands (81.9%), North-west England (79.0%), and East Scotland (55.3%), while the lowest proportional coverage was in the Channel Islands (17.8%) and North and West Scotland (5.0%).

Although coastal coverage was uneven among regions, the total sampled length exceeded one-sixth of the UK coastline, providing a broad and representative basis for estimating wintering gull populations across both coastal habitats.

3.2 Raw counts, population estimates and thresholds

The raw counts show Black-headed Gull to be the most commonly recorded species during WinGS counts, with around 713,000 birds counted (excluding supplementary counts), representing around 47% of the total number of birds observed. Common Gull (310,000) and Herring Gull (297,000) were the second and third most common species and accounted for 40% of the total, with gulls recorded in one of the three unidentified categories accounting for a further 9% (Table 8a). Less than 0.1% of the gulls observed during WinGS were identified to species other than the six main species, with the most common of these being Kittiwake *Rissa tridactyla* (497 individuals).

The species breakdown across each of the four UK countries differed somewhat from that of the UK. Black-headed Gull was the most commonly recorded species in both England (55%, Table 8b) and Northern Ireland (Table 8e) but was only the third most common in Scotland behind Common Gull and Herring Gull, where it made up only 16% of the raw total (Table 8c). Herring Gull was the most commonly recorded species in Wales (36%, Table 8d), where a much larger proportion of gulls than elsewhere were recorded as unidentified (25%).

Table 8 a.–g. Raw totals of individual gull species, 'small gulls', 'large gulls' and 'unidentified' gulls recorded during the main counts for (a) all survey sites (UK, Channel Islands and Isle of Man), (b) England, (c) Scotland, (d) Wales (e) Northern Ireland, (f) Channel Islands and (g) Isle of Man. These represent the raw totals for the data used to produce population estimates, i.e. they exclude any supplementary WinGS counts. Note that a small number of sectors straddle country boundaries: birds in these sectors have been included in both country tables.

8a. All survey sites

Species	Inland	Coastal	Total
Black-headed Gull *Chroicocephalus ridibundus*	417,021	295,664	712,685
Common Gull *Larus canus*	160,280	149,512	309,792
Mediterranean Gull *Ichthyaetus melanocephalus*	69	1,700	1,769
Unidentified small gull	22,572	38,806	61,378
Lesser Black-backed Gull *Larus fuscus*	43,573	4,608	48,181
Herring Gull *Larus argentatus*	84,700	211,830	296,530
Great Black-backed Gull *Larus marinus*	4,074	5,797	9,871
Unidentified large gull	7,289	31,939	39,228
Unidentified gull	2,871	38,497	41,368
Little Gull *Larus minutus*	1	2	3
Caspian Gull *Larus cachinnans*	23	2	25
Yellow-legged Gull *Larus michahellis*	61	19	80
Iceland Gull *Larus glaucoides*	1	4	4
Glaucous Gull *Larus hyperboreus*	1	6	7
Kittiwake *Rissa tridactyla*	–	497	497
TOTAL	**742,572**	**778,883**	**1,521,455**

8b. England

Species	Inland	Coastal	Total
Black-headed Gull *Chroicocephalus ridibundus*	408,054	241,900	649,954
Common Gull *Larus canus*	131,279	84,546	215,825
Mediterranean Gull *Ichthyaetus melanocephalus*	542	1,542	2,084
Unidentified small gull	21,637	29,396	51,033
Lesser Black-backed Gull *Larus fuscus*	36,084	2,251	38,335
Herring Gull *Larus argentatus*	65,026	111,527	176,553
Great Black-backed Gull *Larus marinus*	3,860	3,364	7,224
Unidentified large gull	7,267	23,626	30,893
Unidentified gull	2,394	9,469	11,863
Little Gull *Larus minutus*	–	–	–
Caspian Gull *Larus cachinnans*	22	2	24
Yellow-legged Gull *Larus michahellis*	55	16	71
Iceland Gull *Larus glaucoides*	1	1	2
Glaucous Gull *Larus hyperboreus*	1	1	2
Kittiwake *Rissa tridactyla*	–	68	68
TOTAL	**676,222**	**507,709**	**1,183,931**

8c. Scotland

Species	Inland	Coastal	Total
Black-headed Gull *Chroicocephalus ridibundus*	6,100	28,675	34,775
Common Gull *Larus canus*	28,300	56,908	85,208
Mediterranean Gull *Ichthyaetus melanocephalus*	1	12	13
Unidentified small gull	30	6,567	6,597
Lesser Black-backed Gull *Larus fuscus*	187	206	393
Herring Gull *Larus argentatus*	12,933	61,651	74,584
Great Black-backed Gull *Larus marinus*	106	1,749	1,855
Unidentified large gull	5	6,165	6,170
Unidentified gull	466	5,462	5,928
Little Gull *Larus minutus*	–	2	2
Caspian Gull *Larus cachinnans*	–	–	–
Yellow-legged Gull *Larus michahellis*	–	–	–
Iceland Gull *Larus glaucoides*	–	3	3
Glaucous Gull *Larus hyperboreus*	–	5	5
Kittiwake *Rissa tridactyla*	–	400	400
TOTAL	**48,128**	**167,805**	**215,933**

8d. Wales

Species	Inland	Coastal	Total
Black-headed Gull *Chroicocephalus ridibundus*	3,894	23,218	27,112
Common Gull *Larus canus*	112	6,819	6,931
Mediterranean Gull *Ichthyaetus melanocephalus*	26	136	162
Unidentified small gull	900	2,716	3,616
Lesser Black-backed Gull *Larus fuscus*	7,406	2,150	9,556
Herring Gull *Larus argentatus*	5,636	36,389	42,025
Great Black-backed Gull *Larus marinus*	39	616	655
Unidentified large gull	10	2,162	2,172
Unidentified gull	0	23,396	23,396
Little Gull *Larus minutus*	–	–	–
Caspian Gull *Larus cachinnans*	1	–	1
Yellow-legged Gull *Larus michahellis*	6	3	9
Iceland Gull *Larus glaucoides*	–	–	–
Glaucous Gull *Larus hyperboreus*	–	–	–
Kittiwake *Rissa tridactyla*	–	29	29
TOTAL	**18,030**	**97,634**	**115,664**

8e. Northern Ireland

Species	Inland	Coastal	Total
Black-headed Gull *Chroicocephalus ridibundus*	2,842	2,087	4,929
Common Gull *Larus canus*	886	1,255	2,141
Mediterranean Gull *Ichthyaetus melanocephalus*	–	1	1
Unidentified small gull	5	127	132
Lesser Black-backed Gull *Larus fuscus*	19	4	23
Herring Gull *Larus argentatus*	116	1,214	1,330
Great Black-backed Gull *Larus marinus*	7	78	85
Unidentified large gull	16	86	102
Unidentified gull	11	170	181
Little Gull *Larus minutus*	1	–	1
Caspian Gull *Larus cachinnans*	–	–	–
Yellow-legged Gull *Larus michahellis*	–	–	–
Iceland Gull *Larus glaucoides*	–	–	–
Glaucous Gull *Larus hyperboreus*	–	–	–
Kittiwake *Rissa tridactyla*	–	–	–
TOTAL	**3,903**	**5,022**	**8,925**

8f. Channel Islands

Species	Inland	Coastal	Total
Black-headed Gull *Chroicocephalus ridibundus*	15	469	484
Common Gull *Larus canus*	22	5	27
Mediterranean Gull *Ichthyaetus melanocephalus*	–	9	9
Unidentified small gull	–	–	–
Lesser Black-backed Gull *Larus fuscus*	–	2	2
Herring Gull *Larus argentatus*	109	441	550
Great Black-backed Gull *Larus marinus*	15	22	37
Unidentified large gull	–	–	–
Unidentified gull	–	–	–
Little Gull *Larus minutus*	–	–	–
Caspian Gull *Larus cachinnans*	–	–	–
Yellow-legged Gull *Larus michahellis*	–	–	–
Iceland Gull *Larus glaucoides*	–	–	–
Glaucous Gull *Larus hyperboreus*	–	–	–
Kittiwake *Rissa tridactyla*	–	–	–
TOTAL	**161**	**948**	**1,109**

8g. Isle of Man

Species	Inland	Coastal	Total
Black-headed Gull *Chroicocephalus ridibundus*	3	3	6
Common Gull *Larus canus*	40	150	190
Mediterranean Gull *Ichthyaetus melanocephalus*	–	–	–
Unidentified small gull	–	–	–
Lesser Black-backed Gull *Larus fuscus*	1	–	1
Herring Gull *Larus argentatus*	1,130	789	1,919
Great Black-backed Gull *Larus marinus*	58	12	70
Unidentified large gull	–	–	–
Unidentified gull	–	–	–
Little Gull *Larus minutus*	–	–	–
Caspian Gull *Larus cachinnans*	–	–	–
Yellow-legged Gull *Larus michahellis*	–	–	–
Iceland Gull *Larus glaucoides*	–	–	–
Glaucous Gull *Larus hyperboreus*	–	–	–
Kittiwake *Rissa tridactyla*	–	–	–
TOTAL	**1,232**	**954**	**2,186**

Population estimates produced for England, Wales, Scotland, Great Britain as a whole, Northern Ireland, the Channel Islands and the Isle of Man for the six principal gull species wintering in the UK are shown in Table 9. These represent updated figures derived from the 2023/24–2024/25 WinGS, incorporating stratified analysis across Key Sites and Sample Sites.

Table 9. Population estimates, with 95% confidence limits, for the six principal wintering gull species in the UK, its constituent countries, and the Crown Dependencies of the Channel Islands (CI) and Isle of Man (IOM). Bracketed figures show lower and upper 95% confidence limits respectively. Estimates have been rounded to two significant figures. Unrounded population estimates are displayed in Appendix 3. Note that population estimates are produced separately for Great Britain and for England, Scotland and Wales and hence the summed estimates for the three countries will not necessarily match the GB estimate.

	Black-headed Gull	Common Gull	Mediterranean Gull
England	960,000 (800,000–1,200,000)	300,000 (240,000–380,000)	3,800 (1,800–10,000)
Scotland	92,000 (71,000–110,000)	200,000 (150,000–240,000)	63 (43–99)
Wales	49,000 (28,000–99,000)	12,000 (5,400–47,000)	300 (120–2,200)
Great Britain	1,100,000 (940,000–1,300,000)	520,000 (440,000–600,000)	4,300 (2,100–12,000)
Northern Ireland	12,000 (8,400–17,000)	2,100 (560–4,700)	8 (3–15)
Channel Isles	530 (78–1,200)	5 (0–15)	9 (0–21)
Isle of Man	6 (0–15)	2,100 (1,200–3,300)	0 (0–0)

	Lesser Black-backed Gull	Herring Gull	Great Black-backed Gull
England	53,000 (38,000–73,000)	410,000 (340,000–480,000)	16,000 (11,000–25,000)
Scotland	680 (380–1,400)	230,000 (190,000–270,000)	7,800 (6,100–10,000)
Wales	11,000 (2,500–28,000)	82,000 (54,000–140,000)	1,200 (750–5,200)
Great Britain	66,000 (46,000–92,000)	720,000 (640,000–810,000)	26,000 (20,000–37,000)
Northern Ireland	190 (140–380)	8,100 (5,500–9,700)	430 (110–3,000)
Channel Isles	6 (0–12)	1,200 (180–2,400)	62 (17–110)
Isle of Man	1 (0–3)	2,000 (230–4,900)	120 (44–250)

Black-headed Gull remained by far the most abundant species in both Great Britain and Northern Ireland, with an estimated 1,100,000 birds (940,000–1,300,000; 95% CL) across Great Britain. Approximately 87% of this total was estimated to occur in England (960,000), 8% in Scotland (92,000) and 4% in Wales (49,000).

Population estimates place Common Gull as the third most numerous species, with an estimated 520,000 birds (440,000–600,000; 95% CL) in Great Britain. England was estimated to support the majority (59%; 300,000), Scotland held 38% (200,000), and Wales 2% (12,000).

Mediterranean Gull was estimated to be the least numerous of the six species, though continuing its pattern of range expansion, with 4,300 birds (2,100–12,000; 95% CL) estimated for Great Britain. An estimated 91% occurred in England, 1% in Scotland, and 7% in Wales.

The estimated total for Lesser Black-backed Gull was 66,000 birds (46,000–92,000; 95% CL) across Great Britain, with the great majority (82%) in England, 1% in Scotland and 17% in Wales.

Herring Gull was by far the most numerous large gull species, with an estimated 720,000 individuals (640,000–810,000; 95% CL) across Great Britain. England held an estimated 57%, Scotland 32%, while Wales supported around 11%.

Great Black-backed Gull was the least numerous of the large gulls, with 26,000 birds (20,000–37,000; 95% CL) estimated for Great Britain. England accounted for 64% of the total, Scotland 31%, and Wales 5%.

Estimated populations in Northern Ireland were 12,000 Black-headed Gulls, 2,100 Common Gulls, eight Mediterranean Gulls, 190 Lesser Black-backed Gulls, 8,100 Herring Gulls and 430 Great Black-backed Gulls.

Estimated winter populations for the Channel Islands totalled 1,812 gulls including 1,200 Herring Gulls (180–2,400; 95% CL) and 530 Black-headed Gulls (78–1,200; 95% CL), and estimated populations for the Isle of Man totalled 4,227 birds including 2,100 Common Gulls (1,200–3,300; 95% CL) and 2,000 Herring Gulls (230–4,900; 95% CL). However, coverage of Key Sites for both Crown Dependencies was low (four out of six sites and two out of five sites respectively) and hence these figures may be undercounts.

From these estimates, new 1% thresholds of national importance were derived for each species based on the Great Britain totals (Table 10a). Although robust population estimates for All-Ireland are not available, indicative thresholds have been calculated based on the Northern Ireland population estimates and recent Irish Wetland Bird Survey (I-WeBS) counts (Table 10b). The Great Britain and All-Ireland thresholds were used to identify key roosts or foraging areas of national and potentially international significance (see section 3.3).

Table 10 a.–b. Population estimates, 1% national and 1% international importance thresholds for the six principal wintering gull species in (a) Great Britain and (b) Northern Ireland. Population estimates from 2006 (covering the winters of 2003/24–2005/06) are taken from Banks *et al*. (2007) / Burton *et al*. (2013). International importance thresholds, based on breeding population estimates across the whole of the species' or subspecies' range (i.e. referring to biogeographic populations with common breeding areas), are taken from The Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA 2021). Note that no All-Ireland population estimates have been published since those in Crowe (2005) (which were based on subjective assessments rather than a full survey) and the indicative thresholds presented here are based on 1% of the sum of the Northern Ireland population estimate and the peak Irish Wetland Bird Survey (I-WeBS) counts from Burke *et al*. (2025) and therefore will represent less than 1% of the true population as the latter is a minimum count rather than an estimate.

10a. Great Britain

	2023/24–2024/25 GB population estimate	Rounded estimate	1% GB threshold	1% international threshold	2003/04–2005/06 GB population estimate
Black-headed Gull	1,101,791	1,100,000	11,000	20,000	2,155,147
Common Gull	515,834	520,000	5,200	16,400	695,833
Mediterranean Gull	4,337	4,300	43	–	–
Lesser Black-backed Gull	65,856	66,000	660	4,900[1]	124,654
Herring Gull	720,182	720,000	7,200	7,600[2]	729,801
Great Black-backed Gull	25,535	26,000	260	860	75,860

10b. Northern Ireland

	2023/24–2024/24 NI population estimate	I-WeBS Peak Count 2018/19–2023/24	Rounded All-Ireland indicative estimate	Indicative All-Ireland threshold	2003/04–2005/06 NI population estimate
Black-headed Gull	12,197	22,716	35,000	350	44,336
Common Gull	2,120	8,625	11,000	110	9,559
Mediterranean Gull	8	431	440	4	–
Lesser Black-backed Gull	188	5,464	5,700	57	459
Herring Gull	8,132	7,146	15,000	150	13,559
Great Black-backed Gull	433	2,285	2,700	27	750

Rounding conventions are applied according to Musgrove *et al.* (2011) (population estimates of less than 101 are not rounded, population estimates of 101–1,000 are rounded to the nearest 10; population estimates of 1,001–10,000 are rounded to the nearest 100; population estimates of 10,001–100,000 are rounded to the nearest 1,000, population estimates of over 100,001 are rounded to the nearest 10,000; population estimates of over one million are rounded to the nearest 100,000). The thresholds are calculated from the rounded population estimates.

[1.] Threshold for *Larus fuscus graellsii* consistent with Ramsar guidance.

[2.] Threshold for *Larus argentatus argenteus* consistent with Ramsar guidance.

Table 11. Changes in wintering population estimates of the five comparable gull species, comparing median population estimates from 2003/04–2005/06, as reported by Banks *et al.* (2007) with that from 2023/24–2024/25. Comparisons are based on unrounded figures. Declines shown for the Isle of Man and the Channel Islands are likely to be overstated due to low coverage of Key Sites in 2023/24–2024/25.

	Black-headed Gull			Common Gull		
	2003/04–2005/06	2023/24–2024/25	Change	2003/04–2005/06	2023/24–2024/25	Change
England	1,854,876	957,394	-48.4%	469,863	304,813	-35.1%
Scotland	199,682	91,680	-54.1%	200,296	195,105	-2.6%
Wales	100,836	49,443	-51.0%	25,133	12,101	-51.9%
Great Britain	2,155,147	1,101,791	-48.9%	695,833	515,834	-25.9%
Northern Ireland	44,336	12,197	-72.5%	9,559	2,120	-77.8%
Channel Islands	7,565	532	-93.0%	7,702	5	-99.9%
Isle of Man	1,753	6	-99.7%	35	2,112	5,934.3%

	Lesser Black-backed Gull			Herring Gull		
	2003/04-2005/06	2023/24-2024/25	Change	2003/04-2005/06	2023/24-2024/25	Change
England	114,369	52,871	-53.8%	362,821	406,517	12.0%
Scotland	6,510	684	-89.5%	273,058	226,751	-17.0%
Wales	3,838	10,982	186.1%	93,613	82,042	-12.4%
Great Britain	124,654	65,856	-47.2%	729,801	720,182	-1.3%
Northern Ireland	459	188	-59.0%	13,559	8,132	-40.0%
Channel Islands	14	6	-57.1%	10,828	1,174	-89.2%
Isle of Man	7	1	-85.7%	10,106	2,012	-80.1%

	Great Black-backed Gull		
	2003/04-2005/06	2023/24-2024/25	Change
England	53,361	16,164	-69.7%
Scotland	18,113	7,765	-57.1%
Wales	4,365	1,233	-71.8%
Great Britain	75,860	25,535	-66.3%
Northern Ireland	750	433	-42.3%
Channel Islands	732	62	-91.5%
Isle of Man	566	118	-79.2%

3.3. Counts at individual sites

From the population estimates in Table 9 new national importance thresholds have been determined based on the 1% values of the rounded total estimates for Great Britain. These 1% importance thresholds are displayed in Table 10. International importance thresholds are also given in Table 10, taken from the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA 2021). As a contribution to the identification of sites of importance for wintering gulls, a provisional list is drawn up in Table 12 of those individual sites (treating estuaries as discrete sites without subdivision) in Great Britain which surpassed one or more of the 1% threshold levels during the main survey counts and so could potentially be considered as internationally or nationally important for at least one of the six principal wintering species of gulls considered to be of primary importance for this study. These lists are based on the raw counts of individual species and not estimated numbers derived from 'small', 'large' or 'unidentified' gulls, as the use of these estimates could result in the inclusion of sites which do not in actuality pass thresholds. In total, 49 sites exceeded individual species thresholds in Great Britain.

Similarly, Table 13 shows sites in Northern Ireland that held gull numbers exceeding the indicative All-Ireland thresholds based on the Northern Ireland population estimates presented in this report and the peak I-WeBS counts from Burke *et al.* (2025). Note that these are likely to be over-precautionary compared to the Great Britain thresholds as not all birds will have been counted by I-WeBS and therefore the All-Ireland thresholds used to identify potentially important sites in Northern Ireland represent less than 1% of the true population for each species. This precautionary approach is followed as robust population estimates for All-Ireland are unavailable. Five sites exceeded the indicative thresholds in Northern Ireland.

Sites which held waterbird assemblages of at least 20,000 gulls, thus fulfilling an internationally recognised measure of importance derived from the Ramsar Convention, are listed in Table 14. Ten sites held counts of more than 20,000 gulls in at least one winter. The Mersey Estuary held the most gulls among Coastal Sites with an overall total of 70,739 gulls in 2024/25. Among Inland Sites, Draycote Water recorded the highest total of 46,908 gulls. Other notable sites included Abberton Reservoir (37,579 gulls in 2023/24), Chew Valley Lake (20,373 in 2024/25) and Bewl Water (30,596 in 2023/24).

Finally, all counts from sites which are already designated as SPAs or SSSIs with one or more gull species as a non-breeding feature are listed in Table 15 to enable these data to be used for feature condition assessments at these sites.

Table 12. a.–f. Sites with gull roost counts exceeding the 1% thresholds of importance for Great Britain for Black-headed Gull (a), Common Gull (b), Mediterranean Gull (c), Lesser Black-backed Gull (d), Herring Gull (e) and Great Black-backed Gull (f) during the 2023/24–2024/25 Winter Gull Survey. Sites are ordered by count (with the site with the highest mean count shown first).

12a. Black-headed Gull

GB 1% Threshold: 11,000

Site name	Grid reference	Country	Existing SPA?	2023/24	2024/25	Notes
Mersey Estuary	SJ431776	England	Yes	6,288	**63,000**	
Abberton Reservoir	TL976179	England	Yes	**22,784**	**31,922**	
Draycote Water	SP460699	England	No	**26,500**		2023/24 peak.
Southampton Water	SU431088	England	Yes (part of Solent and Southampton Water SPA)	**19,627**	**18,964**	
The Wash	TF413379	England	Yes	**17,830**	2,050	Including counts from Gibraltar Point.
Chingford Reservoirs SSSI	TQ367942	England	No		**15,800**	Combined total for King George V Reservoir (6,800) and William Girling Reservoir (9,000).
Wheldrake Ings	SE703438	England	Yes (part of Lower Derwent Valley SPA)	**12,000**	**14,700**	
Bewl Water	TQ677326	England	No	**13,580**	**11,570**	
Wintersett Reservoir	SE377148	England	No	**12,000**	**13,000**	
Eccup Reservoir SSSI	SE299417	England	No		**12,000**	
Morecambe Bay and Duddon Estuary	SD436753	England	Yes, with non-breeding Lesser Black-backed Gull and Mediterranean Gull as features of the site (part of Morecambe Bay and Duddon Estuary SPA)	**11,693**	275	2023/24 & 2024/25 peak. Incomplete coverage 2024/25.
Nene Washes	TF318002	England	Yes	**11,000**	6,400	

12b. Common Gull

GB 1% Threshold: 5,200

Site name	Grid reference	Country	Existing SPA?	2023/24	2024/25	Notes
Loch Leven	NO147014	Scotland	Yes	**5,514**	**21,500**	
Bewl Water	TQ677326	England	No	**16,540**	2,950	
Firth of Forth		Scotland	Yes	**12,565**	**11,988**	2024/25 peak.
Chew Valley Lake	ST568598	England	Yes	**10,750**	**11,855**	
Broken Cross Muir (Lesmahagow)	NS860378	Scotland	No	**11,750**	**8,800**	
Arlington Reservoir SSSI	TQ533074	England	No	**11,670**		
Draycote Water	SP460699	England	No	**10,500**		2023/24 peak.
Rutland Water	SK909071	England	Yes	**8,543**		
The Wash	TF413379	England	Yes	**8,370**	420	Incomplete coverage 2024/25.
Wheldrake Ings	SE703438	England	Yes (part of Lower Derwent Valley SPA)	5,000	**8,100**	
West Water Reservoir	NT116524	Scotland	Yes	**7,030**	**5,300**	
Stewartby Lake	TL007423	England	No	**6,500**	2,500	
Solway Firth		England/ Scotland	Yes	**6,230**	1,973	
Wells-next-the-Sea	TF916453	England	Yes (part of North Norfolk Coast SPA)	**5,625**		

12c. Mediterranean Gull

GB 1% Threshold: 43

Site name	Grid reference	Country	Existing SPA?	2023/24	2024/25	Notes
Weymouth Bay	SY682799	England	No (close to Chesil Beach and the Fleet SPA)	**650**		
RSPB Lodmoor	SY689814	England	No (close to Chesil Beach and the Fleet SPA)	**500**		
Dover Harbour	TR330411	England	No	**268**	32	2024/25 peak.
Poole Harbour	SZ001859	England	Yes	**223**		
Folkestone-Copt Point And East Wear Bay	TR241364	England	No	**214**	**66**	
Studland Bay	SZ035843	England	No (but adjacent to Poole Harbour SPA)	**140**		
Helford Estuary	SW765265	England	No	**100**		
Cleddau Estuary	SM955155	Wales	No	**59**		

12d. Lesser Black-backed Gull

GB 1% Threshold: 660

Site name	Grid reference	Country	Existing SPA?	2023/24	2024/25	Notes
Llys-y-frân Reservoir	SN036251	Wales	No	**4,900**		
Draycote Water	SP460699	England	No	**3,500**		2023/24 peak.
Farmoor Reservoir	SP445061	England	No	**2,913**		
Ellesmere	SJ406349	England	No	**4,500**	**2,480**	
Chingford Reservoirs SSSI	TQ367942	England	No		**2,418**	Combined total for King George V Reservoir (868) and William Girling Reservoir (1,550) [both subsites exceed threshold].
Llangorse Lake	SO132264	Wales	No	**2,070**	**2,400**	
Chasewater (Cannock Reservoir)	SK033078	England	No	**2,350**	**1,800**	
Cotswold Water Park SSSI	SU188990	England	No	**2,045**	**1,115**	
Ibsley Water	SU150087	England	Part (eastern half is within Avon Valley SPA)	**1,700**	**931**	
Aqualate Mere SSSI	SJ772204	England	No	216	**1,511**	
Severn Estuary		England/ Wales	Yes	**1,421**	154	
Torr Reservoir	ST686433	England	No	**1,250**		2023/24 peak.
Chew Valley Lake	ST568598	England	Yes	**970**	**1,185**	
Chelmarsh Reservoir	SO732876	England	No	**760**	**820**	
Queen Mary Reservoir	TQ072696	England	No (although within the vicinity of South West London Waterbodies SPA)	**800**		
Wroxham Broad	TG310167	England	No (but is immediately adjacent to Broadland SPA)	35	**665**	

12e. Herring Gull

GB 1% Threshold: 7,200

Site name	Grid reference	Country	Existing SPA?	2023/24	2024/25	Notes
Romney Sands	TR082218	England	Yes (part of Dungeness, Romney Marsh and Rye Bay SPA)	**15,000**	300	
Abberton Reservoir	TL976179	England	Yes	**11,896**	3,192	
Draycote Water	SP460699	England	No	**7,900**		
Firth of Forth	NT100789	Scotland	Yes	4,263	**7,648**	
Caldey Island	SS134968	Wales	No (but just outside Bae Caerfyrddin / Carmarthen Bay SPA)	**7,600**	6,630	
Exe Estuary	SX975822	England	Yes	6,544	**7,400**	

12f. Great Black-backed Gull

GB 1% Threshold: 260

Site name	Grid reference	Country	Existing SPA?	2023/24	2024/25	Notes
Lydd Gravel Pit	TR067197	England	Yes (part of Dungeness, Romney Marsh and Rye Bay SPA)	**2,200**		
Romney Sands	TR082218	England	Yes (part of Dungeness, Romney Marsh and Rye Bay SPA)	**800**	40	
Holehaven Creek, Canvey Island	TQ800849	England	No (but close to Thames Estuary & Marshes SPA)	**750**	**530**	
Draycote Water	SP460699	England	No	**408**		
Pagham Harbour	SZ873960	England	Yes	3	**400**	2024/25 peak.
Abberton Reservoir	TL976179	England	Yes	**287**		

Table 13a.–d. Sites in Northern Ireland with gull roost counts exceeding the indicative thresholds of species importance for All-Ireland for Black-headed Gull (a), Common Gull (b), Herring Gull (c) and Great Black-backed Gull (d) during the 2023/24–2024/25 Winter Gull Survey. There were no sites exceeding the indicative thresholds for Mediterranean Gull or Lesser Black-backed Gull. See Table 10b. for further details of the thresholds used here (note that no recent All-Ireland population estimates have been published and the indicative thresholds are based on the sum of Northern Ireland population estimate and peak I-WeBS counts from Burke *et al*. (2025) and therefore will represent less than 1% of the true population as the latter is a minimum count rather than an estimate.

13a. Black-headed Gull

All-Ireland indicative threshold: 350

Site name	Existing SPA?	2023/24	2024/25	Notes
Lough Neagh	Yes (as Lough Neagh and Lough Beg SPA)	**2,067**	**1,035**	Incomplete coverage 2024/25

13b. Common Gull

All-Ireland indicative threshold: 110

Site name	Existing SPA?	2023/24	2024/25	Notes
Belfast Lough	Yes	**928**	–	
Lough Neagh	Yes (as Lough Neagh and Lough Beg SPA)	**892**	5	
Outer Ards	Yes	–	**681**	
Carnlough Bay	No	–	**527**	

13c. Herring Gull

All-Ireland indicative threshold: 150

Site name	Existing SPA?	2023/24	2024/25	Notes
Outer Ards	Yes	–	**729**	
Belfast Lough	Yes	**276**	69	
Strangford Lough (Down)	Yes	54	**204**	

13d. Great Black-backed Gull

All-Ireland indicative threshold: 27

Site name	Existing SPA?	2023/24	2024/25	Notes
Outer Ards	Yes	–	**59**	

Table 14. Sites with one or more assemblages of at least 20,000 gulls during the 2023/24–2024/25 Winter Gull Survey. Totals represent the summed count of all gulls observed at the site in the given survey year, with the two-year mean calculated for sites with data across both survey years.

Site	Year	Black-headed Gull	Common Gull	Mediterranean Gull	Small Gull	Herring Gull	Lesser Black-backed Gull	Great Black-backed Gull	Large Gull	Unidentified Gull	Total	Two-year Mean
Draycote Water *	2023/24	25,000	10,500			7,900	3,100	408			46,908	46,908
	2024/25											
Mersey Estuary	2023/24	6,288	678			1,446	249	93			8,754	39,747
	2024/25	63,000	650			5,000	450	59		1,580	70,739	
Abberton Reservoir	2023/24	22,784	2,597	1		11,896	14	287			37,579	36,524
	2024/25	31,922	355			3,192					35,469	
Chingford Reservoirs SSSI	2023/24											23,400
	2024/25	15,800	2,490			2,350	2,418	62	250	30	23,400	
Bewl Water	2023/24	13,580	16,540	2		472		2			30,596	22,861
	2024/25	11,570	2,950	3		598	1	3			15,125	
Wheldrake Ings	2023/24	14,700	8,100	1		1,000	8	140			23,949	20,681
	2024/25	12,000	5,000	2		400	1	10			17,413	
Arlington Reservoir	2023/24	7,350	11,670	1		1,230	1	31			20,283	20,283
	2024/25											
Chew Valley Lake	2023/24	4,230	10,750			2,485	970	3			18,438	19,406
	2024/25	5,640	11,855	2		1,690	1,185	1			20,373	
Loch Leven	2023/24	800	21,500			750		40			23,090	14,823
	2024/25	710	5,514			317		15			6,556	
Solway Firth	2023/24	6,497	6,230		4,042	3,929	17	73	11	2,844	23,643	13,955
	2024/25	97	1,973			392	6	17		1,781	4,266	
	Autumn '24	4,128	23,035			2,909	2,878	79			33,029	

*Peak overall may differ from peak species counts

Where wintering gulls are existing features of designation for SPAs and other sites (such as Sites of Scientific Interest (SSSIs)), totals have been calculated. Note that while previous site tables report on 'Firth of Forth' SPA, the SPA for which wintering gulls are designated is Outer Firth of Forth and St Andrews Bay Complex, and so the areas that these raw counts relate to are not equal and result in differing species and site totals. Note that these totals are based on raw counts only and no attempt to extrapolate to areas outside counted sites, or to uncounted sites, within the SPA/SSSI boundaries.

Table 15. Raw species totals of gulls during the 2023/24–2024/25 Winter Gull Survey at SPAs and SSSIs where non-breeding gulls are features of designation.

Site	Year	Black-headed Gull	Common Gull	Mediterranean Gull	Small Gull	Herring Gull	Lesser Black-backed Gull	Great Black-backed Gull	Large Gull	Unidentified Gull	Total	Two-year Mean
Outer Firth of Forth and St Andrews Bay Complex SPA	2023/24	9,228	11,396	4	4,525	2,709	356	25	2,168		30,411	31,135
	2024/25	4,152	15,450	5	702	10,281	14	96	1,159		31,859	
	Autumn	6,188	5,990	3	550	10,703	896	26	947		25,303	
Solway Firth SPA	2023/24	6,497	6,230		4,042	3,929	17	73	11	2,844	23,643	13,955
	2024/25	97	1,973			392	6	17		1,781	4,266	
	Autumn	4,128	23,035			2,909	2,878	79			33,029	
Morecambe Bay and Duddon Estuary SPA	2023/24	11,693	1,968		45	1,609	129	42	200		15,686	10,554
	2024/25	275	1,424			3,061	6	55	600		5,421	
	Autumn	43	3	1		217	3	5	554	207	1,033	*
Cotswolds SSSI	2023/24	3,849	4,341	1		3,825	2,045				14,061	8,753
	2024/25	765	173	1		167	2,339				3,445	
	Autumn	239	2			73	367				681	*

*Incomplete coverage, totals should not be taken to represent total number of birds present at the site in autumn.

3.4. Paired comparison between 2023/24–2024/25 and 2003/04–2005/06 winter counts

Counts of wintering gulls were compared between sites surveyed in both the 2003/04–2005/06 and 2023/24–2024/25 Winter Gull Surveys using GLMMs with negative binomial errors.

The number of paired sites sectors used in the analysis shown in Table 16 and percentage density changes between the 2003/04–2005/06 and 2023/24–2024/25 surveys are shown in Table 17.

Due to limited paired data available, paired analysis was not undertaken for the Isle of Man and Channel Islands.

Table 16. Number of paired site sectors included in the pairwise analyses comparing gulls numbers in the 2023/24–2024/25 and 2003/04–2005/06 Winter Gull Surveys. The total number of paired site sectors included in the paired comparison analyses by country and site category, compared with the total number of site sectors surveyed in 2023/24–2024/25. Note that the total number of paired sectors used for each species comparison may have been lower as paired sectors with no records for a species in either survey were excluded from the analysis.

Country	Paired Key Sites	Paired Sample Sites	Total paired site sectors	Total number of site sectors surveyed for 2023/24–2024/25 population estimates
England	439	113	552	910
Scotland	122	77	199	443
Wales	86	40	126	194
Great Britain	647	230	877	1,547
Northern Ireland	54	4	58	120
UK	701	234	935	1,667

For Mediterranean Gull, model convergence and parameter stability were achieved only for England and the aggregated GB dataset. Models fitted to other countries did not converge reliably or produced unstable estimates due to very low counts.

Whilst the pairwise analyses results for all six species are reported in Table 17, it should be noted that caution should be applied when interpreting the results for Lesser Black-backed Gull and Great Black-backed Gull. Both species have relatively small populations in comparison to the other most numerous wintering gull species, i.e. Black-headed, Common and Herring Gull. Hence relatively few birds will be observed at each roost and the site-based pairwise model will be more sensitive to both random variation in counts across the two WinGS surveys and the allocation of unidentified gulls to each species where large counts of unidentified gulls are present at the site level.

It should also be noted that the results for Wales are strongly influenced by one important site at which substantial numbers of unidentified gulls were counted during the current WinGS. Consequently, the pairwise results for Wales have wide confidence intervals and, with the exception of Herring Gull, are not statistically significant.

Table 17. Rates of change in estimated densities of wintering gulls between 2003/04–2005/06 and 2023/24–2024/25. Significant changes are highlighted by * (highly significant, <0.001), ** (significant, <0.01), * (weakly significant, <0.05). Negative differences indicate higher counts occurred in 2003/04–2005/06, i.e. declines have occurred.**

Black-headed Gull

	Change								
Country	**Inland**	**95%: CI**		**Coastal**	**95%: CI**		**Overall**	**95%: CI**	
England	-0.37	(-0.39 to -0.31)	***	-0.36	(-0.37 to -0.34)	***	-0.36	(-0.37 to -0.34)	***
Scotland	-0.36	(-0.40 to -0.31)	***	-0.35	(-0.39 to -0.32)	***	-0.36	(-0.39 to -0.32)	***
Wales	-0.01	(-0.08 to 0.08)		0.01	(-0.06 to 0.06)		0.00	(-0.06 to 0.06)	
Great Britain	-0.35	(-0.38 to -0.31)	***	-0.30	(-0.32 to -0.29)	***	-0.33	(-0.34 to -0.30)	***
Northern Ireland	-0.25	(-0.29 to -0.22)	***	-0.25	(-0.28 to -0.23)	***	-0.25	(-0.27 to -0.24)	***
United Kingdom	-0.35	(-0.37 to -0.30)	***	-0.30	(-0.31 to -0.29)	***	-0.32	(-0.33 to -0.30)	***

Common Gull

	Change								
Country	**Inland**	**95%: CI**		**Coastal**	**95%: CI**		**Overall**	**95%: CI**	
England	-0.30	(-0.37 to -0.22)	***	-0.21	(-0.27 to -0.16)	***	-0.24	(-0.29 to -0.19)	***
Scotland	-0.11	(-0.21 to -0.01)	*	0.00	(-0.07 to 0.06)		-0.03	(-0.10 to 0.02)	
Wales	-0.10	(-0.26 to 0.23)		0.01	(-0.15 to 0.37)		-0.03	(-0.17 to 0.31)	
Great Britain	-0.29	(-0.36 to -0.21)	***	-0.15	(-0.19 to -0.09)	***	-0.19	(-0.24 to -0.15)	***
Northern Ireland	-0.11	(-0.20 to -0.03)	*	-0.01	(-0.10 to 0.05)		-0.04	(-0.13 to 0.01)	
United Kingdom	-0.26	(-0.33 to -0.19)	***	-0.13	(-0.18 to -0.09)	***	-0.17	(-0.22 to -0.13)	***

Mediterranean Gull

	Change								
Country	**Inland**	**95%: CI**		**Coastal**	**95%: CI**		**Overall**	**95%: CI**	
England	1.42	(-0.29 to 2.77)		3.36	(-0.06 to 9.24)		3.32	(-0.06 to 9.07)	
Great Britain	1.95	(-0.19 to 3.92)		4.63	(0.49 to 10.14)	**	4.58	(0.50 to 9.97)	**

Lesser Black-backed Gull

	Change								
Country	**Inland**	**95%: CI**		**Coastal**	**95%: CI**		**Overall**	**95%: CI**	
England	-0.13	(-0.18 to -0.06)	***	-0.20	(-0.29 to -0.10)	***	-0.16	(-0.21 to -0.11)	***
Scotland	0.18	(-0.09 to 0.52)		0.08	(-0.16 to 0.34)		0.14	(-0.12 to 0.42)	
Wales	0.11	(-0.13 to 0.46)		0.02	(-0.20 to 0.34)		0.07	(-0.17 to 0.39)	
Great Britain	-0.12	(-0.17 to -0.05)	***	-0.13	(-0.21 to -0.03)	**	-0.12	(-0.17 to -0.07)	***
Northern Ireland	0.32	(-0.10 to 0.93)		0.21	(-0.18 to 0.76)		0.27	(-0.12 to 0.86)	
United Kingdom	-0.11	(-0.17 to -0.05)	***	-0.12	(-0.21 to -0.02)	**	-0.12	(-0.17 to -0.06)	***

Herring Gull

	Change								
Country	Inland	95%: CI		Coastal	95%: CI		Overall	95%: CI	
England	0.12	(0.07 to 0.18)	***	0.05	(0.03 to 0.07)	***	0.07	(0.05 to 0.09)	***
Scotland	-0.10	(-0.15 to -0.04)	***	-0.15	(-0.17 to -0.13)	***	-0.14	(-0.16 to -0.12)	***
Wales	0.55	(0.47 to 0.66)	***	0.46	(0.42 to 0.54)	***	0.48	(0.44 to 0.56)	***
Great Britain	0.08	(0.04 to 0.14)	***	0.07	(0.06 to 0.09)	***	0.08	(0.06 to 0.09)	***
Northern Ireland	1.47	(1.20 to 1.68)	***	1.32	(1.13 to 1.46)	***	1.35	(1.14 to 1.49)	***
United Kingdom	0.14	(0.08 to 0.20)	***	0.12	(0.10 to 0.13)	***	0.12	(0.10 to 0.14)	***

Great Black-backed Gull

	Change								
Country	Inland	95%: CI		Coastal	95%: CI		Overall	95%: CI	
England	-0.52	(-0.57 to -0.47)	***	-0.21	(-0.26 to -0.14)	***	-0.26	(-0.30 to -0.21)	***
Scotland	-0.49	(-0.55 to -0.42)	***	-0.15	(-0.22 to -0.06)	***	-0.21	(-0.27 to -0.13)	***
Wales	-0.15	(-0.37 to 0.14)		0.43	(0.07 to 0.90)	***	0.33	(-0.01 to 0.76)	
Great Britain	-0.50	(-0.55 to -0.45)	***	-0.12	(-0.17 to -0.05)	***	-0.18	(-0.23 to -0.13)	***
Northern Ireland	0.11	(-0.08 to 0.33)		0.86	(0.58 to 1.14)	***	0.73	(0.48 to 1.00)	***
United Kingdom	-0.48	(-0.53 to -0.43)	***	-0.09	(-0.15 to -0.03)	*	-0.16	(-0.21 to -0.10)	***

Across both UK and GB scales, the pairwise comparison models for Black-headed Gull showed clear evidence of declines since the previous WinGS. The results estimate a reduction of around 33% relative to 2003/04–2005/06 at both GB and UK scales (GB: -33%, 95% CI -34% to -30%, ***; UK: -32%, -33% to -30%, ***). Similar and statistically significant declines occurred across England (-36%), Scotland (-36%) and Northern Ireland (-25%) , while there was no evidence of change in Wales. The declines were also observed across both inland (UK -35%, ***) and Coastal Sites (UK -30%, ***). Trends were therefore spatially consistent and indicated UK-wide and GB-wide reductions.

Common Gull models suggest moderate declines overall at both UK and GB scales (overall results of -17%, 95% CI -22% to -13%, *** and -19%, -24% to -15%, *** respectively). At the UK level, declines were statistically significant across both Inland Sites (-26%, ***) and Coastal Sites (-13%, ***). However, patterns varied between countries. Strong and significant declines were recorded in England (overall -24%, ***), whereas Scotland, Wales and Northern Ireland showed no significant overall change, although both Scotland and Northern Ireland showed marginal evidence of a decline at Inland Sites. No strong evidence for habitat-specific differences through time was detected at the national scale, although inland declines were slightly larger than coastal declines. The results from the population estimates support these conclusions for England, Scotland and Wales, but suggest that there has been a decline in Northern Ireland. The pairwise model for Northern Ireland does suggest a slight decline, however, and the insignificant result may be due to the low sample size (Table 2).

Mediterranean Gull models showed strong increases at both scales. The models estimated a density increase of 458% (95% CI 50% to 997%, **) across Great Britain between 2003/04–2005/06 and 2023/24–2024/25, supporting the evidence from the WinGS population estimates and other surveys of a strong ongoing increase across the UK.

Herring Gull models indicate overall increases at both GB and UK scales (GB: +8%, 95% CI 6% to 9%, ***; UK: +12%, 10% to 14%, ***). However, trends differed between countries. England showed

significant increases (overall +7%, ***), as did Wales (+48%, ***) and Northern Ireland (+135%, ***). In contrast, Scotland showed significant declines (overall -14%, ***). Increases were observed at both inland and Coastal Sites at GB and UK scales and were statistically significant.

Lesser Black-backed Gull models suggest a shallow overall decline at both GB (-12%, 95% CI -17% to -7%, ***) and UK (-12%, -17% to -6%, ***) scales. Declines were significant in England (overall -16%, ***) and at both Inland Sites and Coastal Sites at UK and GB scales, although effect sizes were modest. Scotland, Northern Ireland and Wales showed non-significant increases. While some country-level results were not significant, the vast majority of wintering Lesser Black-backed Gulls are found in England and hence the direction of change at GB and UK scales aligns with the updated population estimates, providing further evidence of an overall UK decline.

Great Black-backed Gull declined strongly in both UK and GB models (UK: -16%, 95% CI -21% to -10%, ***; GB: -18%, -23% to -13%, ***). Larger declines were recorded at Inland Sites (UK -48%, ***) than at Coastal Sites (UK -9%, *), though both results were statistically significant, the latter only marginally. England and Scotland both showed significant overall declines. In contrast, Northern Ireland showed significant increases overall (+73%, ***) and Wales showed non-significant increases. Thus, while the overall UK and GB trend indicates decline, some regional variation is evident.

Overall, population trends were highly variable across both species and countries. Consistent and statistically significant declines were most evident for Black-headed Gull. In contrast, Herring Gull and Mediterranean Gull showed significant increases at UK and GB scales, although with regional differences for Herring Gull (a decline in Scotland). Common Gull, Lesser Black-backed Gull and Great Black-backed Gull also exhibited regional variability, although in the case of the two black-backed gull species the pairwise comparison results should be interpreted with caution due to the low numbers of birds present at most sites.

3.5. Paired comparison of autumn count and winter counts

3.5.1. Autumn coverage

Autumn coverage extended across 13 regions: Wales, South-west England, South-east England, Eastern Scotland, South-west Scotland, North and West Scotland, Northern Ireland, the Midlands, Isle of Man, North-west England, North-east England, East Anglia, and the Channel Islands. The most comprehensive regional coverage occurred in South-east England at 66 sectors and Wales with 63 sectors covered. More limited but important coverage was achieved in Scotland and Northern Ireland. Due to the limited data available, Isle of Man and Channel Islands were omitted from modelled comparisons.

Overall, the autumn dataset contained at least one count level sector from 227 (35% of) Key Sites and 150 Sample Sites.

3.5.2. Model results

Counts of autumn gulls were compared with winter counts using sites surveyed in both the winter and autumn seasons using GLMMs with negative binomial error distributions. A separate model was fitted for each species. Model structure differed by species: Black-headed Gull, Common Gull, Herring Gull, Lesser Black-backed Gull and Great Black-backed Gull were fitted using a nbinom1 parameterisation, while Mediterranean Gull was fitted using a nbinom2 parameterisation to better accommodate overdispersion. All models were specified using the fixed-effects structure.

A random intercept for site was included to account for repeated measures at the same location. This structure allowed seasonal differences (autumn vs winter) to vary by country and habitat (coastal vs inland), while also modelling habitat-specific effort effects through the COASTAL × log(effort) interaction. Percentage density changes between the autumn and winter 2023/24–2024/25 surveys derived from these models are presented in Table 18.

For combined habitat models, the mean was weighted based on the proportion of the winter population found within each habitat. Differences between the autumn and winter 2023/24–2024/25 surveys are shown in Table 18.

Due to insufficient data, the Channel Islands and Isle of Man were not included in the analyses and hence results for the Crown Dependencies are not shown in the table. For Mediterranean Gull, model convergence and parameter stability were achieved only for England and the aggregated GB dataset. Models fitted to other countries did not converge reliably or produced unstable estimates due to very low counts. Seasonal inferences for Mediterranean Gull should therefore be interpreted as reflecting patterns in England rather than consistent UK-wide change.

Table 18. Differences in estimated densities of gulls at surveyed sites between autumn 2024 and winter 2023/24–2024/25. Positive differences represent higher counts in winter and negative differences indicate higher counts occurred in autumn.

Black-headed Gull

	Difference								
Country	**Inland**	**95%: CI**		**Coastal**	**95%: CI**		**Overall**	**95%: CI**	
England	1.65	(1.56 to 1.71)	***	0.08	(0.06 to 0.11)	***	0.59	(0.56 to 0.62)	***
Scotland	0.89	(0.74 to 1.03)	***	-0.23	(-0.27 to -0.18)	***	0.14	(0.06 to 0.21)	**
Wales	2.48	(2.34 to 2.62)	***	0.42	(0.39 to 0.46)	***	1.09	(1.04 to 1.14)	***
Great Britain	1.55	(1.46 to 1.62)	***	0.07	(0.05 to 0.09)	***	0.55	(0.53 to 0.58)	***
Northern Ireland	3.45	(3.28 to 3.60)	***	0.82	(0.82 to 0.83)	***	1.67	(1.63 to 1.71)	***
United Kingdom	1.56	(1.47 to 1.63)	***	0.08	(0.06 to 0.10)	***	0.57	(0.54 to 0.59)	***

Common Gull

	Difference								
Country	**Inland**	**95%: CI**		**Coastal**	**95%: CI**		**Overall**	**95%: CI**	
England	2.45	(2.25 to 2.74)	***	0.94	(0.79 to 1.11)	***	1.30	(1.15 to 1.48)	***
Scotland	0.83	(0.60 to 1.03)	***	0.03	(-0.04 to 0.11)		0.22	(0.12 to 0.31)	***
Wales	3.56	(3.12 to 3.98)	***	1.56	(1.47 to 1.65)	***	2.04	(1.92 to 2.15)	***
Great Britain	2.30	(2.08 to 2.58)	***	0.75	(0.65 to 0.87)	***	1.11	(1.01 to 1.25)	***
Northern Ireland	2.26	(1.94 to 2.54)	***	0.83	(0.82 to 0.83)	***	1.17	(1.10 to 1.23)	***
United Kingdom	2.27	(2.06 to 2.56)	***	0.74	(0.65 to 0.86)	***	1.10	(1.01 to 1.23)	***

Mediterranean Gull

	Difference								
Country	**Inland**	**95%: CI**		**Coastal**	**95%: CI**		**Overall**	**95%: CI**	
England	7.07	(5.71 to 10.14)	***	-0.65	(-0.87 to -0.06)	*	-0.64	(-0.87 to -0.04)	*
Great Britain	9.96	(8.62 to 13.14)	***	-0.67	(-0.84 to -0.30)	**	-0.66	(-0.83 to -0.28)	**

Lesser Black-backed Gull

	Difference								
Country	**Inland**	**95%: CI**		**Coastal**	**95%: CI**		**Overall**	**95%: CI**	
England	-0.13	(-0.23 to -0.03)	***	-0.21	(-0.29 to -0.14)	***	-0.17	(-0.25 to -0.09)	***
Scotland	-0.66	(-0.75 to -0.54)	***	-0.69	(-0.76 to -0.61)	***	-0.67	(-0.75 to -0.58)	***
Wales	-0.18	(-0.25 to -0.11)	***	-0.25	(-0.28 to -0.22)	***	-0.21	(-0.24 to -0.18)	***
Great Britain	-0.13	(-0.18 to -0.09)	***	-0.32	(-0.37 to -0.29)	**	-0.22	(-0.26 to -0.19)	***
Northern Ireland	-0.07	(-0.17 to 0.04)		-0.15	(-0.16 to -0.14)	***	-0.11	(-0.16 to -0.04)	***
United Kingdom	-0.13	(-0.18 to -0.09)	***	-0.32	(-0.36 to -0.28)	***	-0.22	(-0.26 to -0.19)	***

Herring Gull

	Difference								
Country	**Inland**	**95%: CI**		**Coastal**	**95%: CI**		**Overall**	**95%: CI**	
England	1.08	(0.98 to 1.19)	***	0.02	(-0.02 to 0.06)		0.17	(0.13 to 0.21)	***
Scotland	0.23	(0.11 to 0.36)	***	-0.40	(-0.43 to -0.35)	***	-0.31	(-0.35 to -0.25)	***
Wales	1.29	(1.16 to 1.43)	***	0.12	(0.08 to 0.15)	***	0.29	(0.25 to 0.33)	***
Great Britain	1.04	(0.94 to 1.15)	***	-0.08	(-0.11 to -0.06)	*	0.08	(0.05 to 0.10)	***
Northern Ireland	3.20	(2.95 to 3.46)	***	1.05	(1.04 to 1.06)	***	1.37	(1.33 to 1.40)	***
United Kingdom	1.04	(0.94 to 1.15)	**	-0.07	(-0.10 to -0.05)	*	0.09	(0.06 to 0.11)	**

Great Black-backed Gull

	Difference								
Country	**Inland**	**95%: CI**		**Coastal**	**95%: CI**		**Overall**	**95%: CI**	
England	1.39	(1.12 to 1.67)	***	0.09	(-0.03 to 0.25)		0.21	(0.10 to 0.37)	**
Scotland	0.27	(0.01 to 0.54)	*	-0.42	(-0.53 to -0.33)	***	-0.36	(-0.47 to -0.26)	***
Wales	0.63	(0.40 to 0.87)	***	-0.26	(-0.31 to -0.18)	***	-0.18	(-0.23 to -0.09)	***
Great Britain	1.22	(0.97 to 1.47)	***	-0.13	(-0.19 to -0.05)	***	-0.01	(-0.07 to 0.06)	
Northern Ireland	4.16	(3.41 to 4.96)	***	1.35	(1.28 to 1.36)	***	1.61	(1.54 to 1.66)	***
United Kingdom	1.22	(0.97 to 1.47)	***	-0.12	(-0.18 to -0.04)	***	0.00	(-0.06 to 0.07)	

Black-headed Gull showed strong positive winter–autumn differences at Inland Sites, with numbers in winter around two times higher or greater than in autumn in all four UK countries and across Great Britain and the UK as a whole (156% higher in autumn at a UK scale, 95% CL 147% to 163%). At coastal roosts, numbers were similar in autumn and winter, but were slightly higher during winter in all countries apart from Scotland where numbers were slightly higher in autumn (UK +8% in winter, 95% CL 6% to 10%). Overall higher numbers in winter (UK +57%, 95% CL 54% to 59%) were therefore primarily driven by Inland Site changes.

For Common Gull, both UK and Great Britain results indicated substantially higher winter densities relative to autumn which, like Black-headed Gull were greater at Inland Sites (UK Inland +227%, 95% CL 206% to 256%; UK Coastal +74%, 95% CL 65% to 86%; UK Overall +110%, 95% CL 101% to 123%. These changes were consistent across all four UK countries although winter numbers were only slightly higher in Scotland (Overall +22%, 95% CL 12% to 31%) and the difference was greatest in Wales (Overall +204%, 95% CL 192% to 215%). Seasonal differences therefore appear to be strong, widespread and spatially consistent.

In contrast, Mediterranean Gull models showed pronounced positive winter–autumn differences at Inland Sites, i.e. numbers were higher in winter (GB +996%, 95% CL 862% to 1,314%), but significant negative differences at Coastal Sites, i.e. numbers were higher in autumn (GB -67%, 95% CL -84% to -30%). As the vast majority of Mediterranean Gulls were recorded at Coastal Sites (Table 8), overall numbers were higher in autumn despite the much larger percentage difference at Inland roosts (GB -66%, 95% CL -83% to -28%). This indicates clear habitat-specific changes in distribution, with the small number of Mediterranean Gulls using Inland Sites much more likely to do so during winter.

Lesser Black-backed Gull showed consistently negative winter–autumn differences across both the UK and Great Britain models and across both habitats, i.e. like Mediterranean Gull numbers at roost sites were higher during autumn although the difference was less pronounced than that shown by Mediterranean Gull (UK Inland -13%, 95% CL -18% to -9%; UK Coastal -32%, 95% CL -36% to -28%; UK Overall -22%, 95% CL -26% to -19%). This pattern was also consistent across all four UK countries, although there was some evidence of seasonal redistribution with Scotland showing a much greater difference between autumn and winter counts than the other three UK countries (Scotland Overall -67%, 95% CL -75% to -58%; England Overall -17%, 95% CL -25% to -9%, Wales Overall -21%, 95% CL -24% to -18%, Northern Ireland Overall -11%, 95% CL -16% to -4%).

In contrast, Herring Gull showed moderately significant positive winter–autumn differences at a UK scale indicating that, like Black-headed Gull and Common Gull, numbers are higher during winter (UK Overall +9%, 95% CL 6% to 11%, **). There were clear differences across habitats, however, with numbers higher at Inland Sites during winter (UK Inland +104%, 95% CL 94% to 115%, **) but higher at Coastal Sites during autumn, although this result was only marginally significant (-7%, 95% CL -10% to -5%, *). Whilst numbers at Inland roosts were higher during autumn across all UK countries, there were regional differences at coastal roosts, where numbers were higher during autumn in Scotland (-40%, 95% CL -43% to -35%) but higher during winter in both Wales (+12%, 95% CL 8% to 15%, ***) and Northern Ireland (+105%, 95% CL 104% to 106%) with no seasonal difference found in England. Seasonal differences therefore suggest redistribution from coastal to inland roosts during winter and also regional redistribution.

Finally, Great Black-backed Gull models also showed evidence of seasonal redistribution across habitats and across UK countries. As for Herring Gull, numbers were higher at Coastal roost sites during autumn but at Inland Sites during winter (UK Coastal -12%, 95% CL -18% to -4%, ***; UK Inland +122%, 95% 97% to 147%). Despite the much larger percentage difference at Inland Sites, the seasonal differences balanced out as the vast majority of Great Black-backed Gulls are found in coastal habitats, and there was no overall seasonal change at a UK scale (UK Overall 0%, 95% CL -6% to +7%). Across all habitats, numbers were greater during autumn in both Scotland (-36%, 95% CL -47% to -26%) and Wales (-18%, 95% CL -23% to -9%) but greater during winter in both England (+21%, 95% CL 10% to 37%) and Northern Ireland (+161%, 95% CL 154% to 166%).

4. Discussion

4.1. Survey design

4.1.1 Coverage and survey organisation

The 2003/04–2005/06 WinGS report (Banks *et al.* 2007) considered the survey methodology to be an improvement on previous WinGS surveys, with the inclusion of Inland Sample Sites and Coastal Sample Sites effectively doubling overall survey effort and enabling complete rather than minimum population estimates to be published. The survey reported good coverage with 90% of Key Sites, 55% of Coastal Sample Sites and 75% of Inland Sample Sites being surveyed.

Whilst the 2023/24–2024/25 survey repeated the methodology followed in 2003/04–2005/06, the coverage was slightly lower than was reported for the previous survey, with 81% of Key Sites, 55% of Coastal Sample Sites and 52% of Inland Sample Sites surveyed. However, it is important to bear in mind that the coverage data for the earlier survey include sites which were submitted as assumed zero counts by surveyors or regional organisers, whereas the current survey followed a more cautious approach before assuming zero counts, except for the 'no water' Inland Tetrad stratum discussed below (section 4.1.2).

Whilst survey methodology was similar to the previous WinGS, there were substantial changes to how the survey has been promoted and organised locally. The 2003/04–2005/06 survey was carried out prior to the widespread use of social media and online data entry, with coverage being coordinated by Regional Organisers and counts submitted through paper survey forms. Messaging about the survey will have occurred mostly through word of mouth or written communication from Regional Organisers direct to volunteers.

The 2023/24–2024/25 survey was again coordinated in a large part by Regional Organisers, and survey instructions were identical to the previous survey. However, social media will have enabled promotion about WinGS to have reached a much wider audience than the previous survey. Although this has benefits as information about the survey reaches a wider diversity of potential volunteers, there are also possible implications on the consistency of methodologies used due to messaging about the survey being more indirect. With promotion, sign-up and data entry now all online, some participants may not have any direct contact at all with the Regional Organiser. Even in this case, however, the Regional Organiser had an important role using their local knowledge in checking counts and coverage. Additionally, a Team Lead role was also used at large complex sites to facilitate coordination of site counts.

Although a proportion of gulls could not be identified to species during roost counts, the approach used in the 2023/24–2024/25 WinGS proved effective in producing robust population estimates despite this uncertainty. The proportion of birds recorded as unidentified was lower than in the previous Winter Gull Survey, potentially reflecting improvements in observer experience, and data validation procedures, as well as improvements in available optical equipment.

4.1.2. Inland strata

The previous WinGS report highlighted that proportionally little of the total land area was surveyed in certain strata and regions, most notably in the low water and no water strata. This was not considered a concern as the number of gulls roosting in these strata was low, with the relatively low proportional coverage of the inland high-water stratum in Northern Ireland, East Anglia and all three Scottish regions being considered a greater concern.

The 2023/24–2024/25 survey attempted to address these concerns and increase surveyor effort in poorly covered strata, with more professional fieldwork being targeted, particularly in Scotland, to low and no water strata.

For future Winter Gull Surveys, further refinement of the inland strata could be beneficial. Many inland samples within the 'Inland No Water' and 'Inland Low Water' strata supported no suitable habitat for roosting gulls. Improved sample site selection based on suitable roosting habitat could

aid in the volunteer experience (and hence increase coverage) as well as focus counting effort within habitats which are likely to support roosting gulls (farm reservoir, other sources of still water) as opposed to habitats with no roosting area (moorland, forest etc.). However, consideration would be needed as this would limit comparability with past surveys.

4.1.3. Rooftop roosts

The WinGS methodology and coverage focus mostly on coastal waters and large inland waterbodies. As discussed above, coverage of the low water and no water strata during this WinGS and the previous WinGS was proportionally low. In many cases Sample Sites that were reported as covered may have only received cursory visits or may have been submitted as 'assumed zero' counts. There are good reasons to be confident that the low coverage of these strata will have had little or no effect on the population estimates. Numbers of birds counted in these strata were very low in both 2003/04–2005/06 and 2023/24–2024/25.

However, tracking data held by BTO show that some gulls do occasionally roost on the rooftops of large factories, warehouses or similar buildings, rather than waterbodies, at least in autumn. The survey design does not account for rooftop roosts and was not considered when the strata for Inland Sample Sites were set up ahead of the 2003/04–2005/06 WinGS. Although suitable rooftops are likely to occur in some of these tetrads in all three strata, they are unlikely to have been systematically surveyed due to observer effort being focused more on waterbodies. Furthermore, previous studies of breeding gulls within urban areas have shown that viewing and obtaining accurate counts and estimates is at best extremely difficult, even when surveyors are specifically attempting to count gulls on rooftops (Woodward *et al.* 2020b).

Observer comments from the current WinGS indicate that gulls were noted on rooftops during the winter surveys in only 12 survey visits, including three cases where the birds on rooftops were outside the survey square and hence were not counted. In at least two of the remaining surveys the comments make clear that these were pre-roost gatherings and the birds were observed leaving the rooftops prior to dusk to head towards nearby known roosts on water. The observed rooftop roosts therefore make up only a tiny proportion of roosts and hence it is unlikely that their omission from the survey design will have a significant impact on the population estimates. However, the full incidence of rooftop roosts during winter remains an unknown factor and it is clearly possible that some additional rooftop roosts may have been missed. Therefore, it would be prudent to undertake further investigation using tracking data and/or ground surveys prior to the next WinGS to assess whether the occurrence of rooftop roosts needs to be accounted for in the survey design.

4.2. Population estimates and changes since the last WinGS

The population estimates published in this report (section 3.2) suggest that around 2.46 million gulls were present in the UK during winter in 2023/24–2024/25, of which the vast majority were made up of 1.10 million Black-headed Gulls (95% confidence intervals: 0.94–1.30 million), 720,000 Herring Gulls (640,000–810,000) and 520,000 Common Gulls (440,000–600,000).

The previous Winter Gull Survey (2003/04–2005/06) (Banks *et al.* 2007) produced the first comprehensive population estimates for wintering gulls in the UK by combining counts at known major roost sites and coverage of Sample Sites elsewhere. As the same methodology was repeated for the 2023/24–2024/25 survey, the population estimates can be directly compared and suggest declines across the UK in four of the five of the main wintering species for which population estimates were published by the previous survey, which produced a total estimate of 3.9 million gulls. The population estimate for Black-headed Gull alone in 2003/04–2005/06 (2.2 million) was similar to the total number of wintering gulls estimated in 2023/24–2024/25. The declines for four species were confirmed by paired analyses of sector level WinGS counts with Herring Gull being the exception. The updated population estimates for Herring Gull suggest there has been little change in wintering numbers since the 2003/04–2005/06 whereas the paired analyses suggest there may have been a slight increase (of around 10%–14%): potential reasons for this contrast are discussed further below.

The declines reported here for most species are broadly comparable with those reported by WeBS, SMP and Seabirds Count (Table 19), although consideration is needed of the populations that each scheme covers. Seabirds Count and SMP outputs relate to breeding populations, from which varying proportions emigrate during the winter, while the UK also receives large numbers of wintering gulls from Fennoscandia and Continental Europe (Wernham *et al.* 2002, Spina *et al.* 2022). WeBS monitors wintering birds, but is based on daytime counts at wetland sites and does not comprehensively cover the wider range of habitats used by gulls, particularly terrestrial foraging areas (Burton *et al.* 2007). In addition, counting gulls is optional within WeBS, and published trends are derived from counts spanning September to March, incorporating passage birds as well as midwinter residents. An additional bespoke calculation of trends using only January WeBS data is therefore included in Table 19 for more direct comparison with results from WinGS.

Although the magnitude of the population changes varies for some species across different surveys due to the differences in populations being measured, the consistent negative direction of the trends across most species and across all four surveys and all six metrics offers evidence that gulls using the UK during one or more seasons have suffered broad-scale and widespread declines. Given its targeted focus on nocturnal roosts and its more comprehensive coverage of habitats used in midwinter, WinGS should be considered the most robust measure of change in wintering gull numbers. Nevertheless, the broad correspondence between WinGS and WeBS trends suggests that WeBS data may provide a useful interim indicator of winter gull trends between WinGS survey periods.

Table 19. Changes in the winter populations of gulls from the Winter Gull Survey (see Tables 11 and 17) compared to changes for wintering gulls within the UK calculated from the Wetland Bird Survey (WeBS) (Frost *et al.* 2026) and for breeding populations calculated by Seabirds Count (Burnell *et al.* 2023) and by the Seabird Monitoring Programme (SMP) (Harris *et al*. 2024).

Species	**WinGS** % change since previous WinGS (population estimate)	**WinGS** % change since previous WinGS (pair-wise analysis)	**WeBS** Published (Sept-March) % change 2004/05–2023/24	**WeBS** Bespoke (Jan only[1]) % change Jan 2005 to Jan 2023	**SMP** % change 2000–2023	**Seabirds Count** 2015–2021 % change since Seabird 2000 (1998–2002)
Black-headed Gull	-49	-32	-29	-29	-23	-29
Common Gull	-26	-17	-43	-32	-38[2]	-52
Mediterranean Gull	N/A	458	2,100	755	N/A	1,639
Lesser black-backed Gull	-47	-12	-50	-63	-78[3]	-49[3]
Herring Gull	-1	12	-22	-33	-46[3]	-44[3]
Great Black-backed Gull	-66	-16	-50	-64	-45	-52

[1] Published WeBS trends (Frost *et al.* 2026) use data across the full winter. Bespoke January-only trends have also been produced for this report as they are more directly comparable with WinGS data.

[2] The Common Gull trend from SMP is for coastal nesters in Scotland only. No trend is available for the whole of the UK. However, the vast majority of the UK breeding population is found in Scotland.

[3] The SMP and Seabirds Count trends for Lesser Black-backed Gull and Herring Gull are for so-called 'natural-nesters' only, i.e. excluding urban gulls which are not monitored reliably at present. Urban gulls now make up a large proportion of the breeding population for these two species (Burnell *et al.* 2023). The WinGS and WeBS trends will include UK breeding birds that remain in the UK during winter from both 'natural' and urban colonies, as well as wintering birds from elsewhere.

However, there are differences between the WinGS results and those from other surveys, with the most notable occurring for Herring Gull. A comparison of population estimates from 2003/04–2005/06 and 2023/24–2024/25 suggests little or no change, whereas the pairwise analyses (which uses a subset of the data as it is restricted to sectors that were surveyed in both periods) suggest that a slight increase of 10–14% has occurred since 2003/04–2005/06 across the UK as a whole, although a slight decline has occurred in Scotland. The confidence intervals around the population estimates for both WinGS surveys do not preclude the possibility that a shallow increase has occurred, but the WinGS results contrast with the trends for Herring Gull reported by other schemes which suggest numbers have declined. As discussed above, however, the other schemes monitor different populations compared to the broader coverage achieved by WinGS.

One possible explanation for the slight contrast in the two WinGS results is a change in roosting behaviour, with Herring Gulls becoming increasingly concentrated at large, regular roost sites that were more likely to have been surveyed during both WinGS periods and hence included in the paired comparison. If numbers have declined more strongly at smaller or more ephemeral roosts that were not consistently surveyed, this would depress the overall population estimates while having less influence on paired-site trends. Consequently, the paired analyses may be less representative for Herring Gull due to a bias towards larger key sites. The apparent stability or increase in paired-site trends therefore suggests that Herring Gulls may now be roosting at higher densities at a smaller number of large sites compared with the previous survey period, i.e. an ecological winter range contraction towards optimal roosting habitat and reduced use of low quality roosts may have occurred.

The WinGS declines based on pairwise analyses for Lesser Black-backed Gull (-12%) and Great Black-backed Gull (-16%) are both much less severe than the equivalent declines based on the WinGS population estimates (-47% and -66% respectively). For both species, the WinGS population estimates are much closer to the declines reported by other surveys (Table 19). This contrast between the WinGS results likely reflects the different datasets used by the pairwise analyses which only include sites counted in both years, i.e. as for Herring Gull, a greater proportion of both species may be roosting at larger roosts which were more likely to have been counted in both surveys.

However, the difference between the two different WinGS analyses is much greater for the two black-backed gull species than for the other gull species and is likely to also reflect differences in how the two analyses work and it what they are trying to measure, and highlights potential issues with the pairwise approach for these two species. The pairwise analyses use a site-based model to assess change rather than comparing population estimates produced for the whole population. Consequently, the pairwise analyses are more sensitive to small changes at individual sites which may have a strong influence on the results for these two species which have a relatively small population and hence only relatively small numbers of birds are present at each site. Despite the large overall declines suffered by both Lesser Black-backed Gull and Great Black-backed Gull, the results suggest that many observers at roost sites recorded smaller local declines. Counts for the two species were highly variable at a site level between the 2003/04–2005/06 and 2023/24–2024/25 WinGS and in some cases large increases occurred at individual sites. As both species have very small populations relative to Herring Gull (the third large gull species), it is also possible that the pairwise analyses may also have been affected by the allocation of unidentified gulls at some sites. Hence, whilst the pairwise analyses do support the results from the population estimates in concluding that both species have declined, greater confidence for these two species should be placed in the scale of the overall population decline measured by the population estimates (which models population change rather than modelled site-based changes).

The WinGS population estimates suggest a greater decline for Black-headed Gull than all other surveys (including winter trends from WeBS) would suggest. The reasons for this discrepancy are uncertain but one possible contributing factor is the outbreak of HPAI which occurred from 2022 onwards (Atkinson & Baillie 2024). This was observed to have caused large mortality events at Black-headed Gull colonies in the UK and elsewhere in 2023 (Coffey & Verspoor 2025, Przymencki *et al.* 2024, Burke *et al.* 2024). Tremlett *et al.* (2024) were unable to confirm declines caused by HPAI in

gull species, although their analysis was based on counts in the 2023 breeding season when the effects of HPAI were still ongoing. The WeBS results shown in Table 19 will include any effects of outbreaks in 2022 and 2023 but do not cover the second winter of the WinGS survey in 2024, although the 2024/25 WeBS data do suggest that further declines had occurred and may be ongoing; hence, if HPAI did have a substantial effect on the wider population this may become apparent in future trends published by WeBS and the other monitoring schemes.

In contrast, the WinGS declines estimated for Common Gull and the increases for Mediterranean Gull are both smaller than those estimated by the other schemes, but are broadly in line with the bespoke January WeBS results which is the dataset most closely resembling the WinGS data.

4.3. Geographical differences in trends

Whilst the WinGS estimates and paired analyses confirm that gull numbers have declined across the UK as a whole, there is more variability in trends between the four UK countries.

Black-headed Gull densities have declined markedly across three of the four UK countries since 2003/04–2005/06, with the exception being Wales where the pairwise comparison showed little or no change. The most recent population estimates for 2023/24–2024/25 indicate approximately 960,000 individuals in England and around 1.1 million across Great Britain overall, representing a substantial decrease relative to the previous survey period. Black-headed Gulls wintering in the UK include both resident breeders and migrants originating from Northern and Eastern Europe and western Russia (Wernham *et al*. 2002, Spina *et al*. 2022). Declines in densities within the UK may reflect not only domestic pressures but also population changes in Continental source populations. The substantial declines in the UK wintering population will largely be driven by broadscale declines across different breeding populations, driven by factors which may include human disturbance, increased predation and declines in invertebrate prey species (Burnell *et al.* 2023) and, more recently, HPAI, as discussed above. However, it is possible that altered migratory behaviour could also be exacerbating the UK decline, as milder winters may increasingly allow birds to remain closer to breeding grounds rather than migrating west to the UK ('short-stopping'). Trends produced by Sovon (de Jong *et al.* 2025) show that wintering numbers of Black-headed Gulls in the Netherlands have been stable over the same period as WinGS (20-year trend), possibly indicating that more UK birds could now be wintering on the near-Continent rather than reaching the UK, i.e. despite moderate flyway-wide declines in Black-headed Gulls as reported in van Roomen *et al.* (2025), the Netherlands population may have been bolstered by short-stopping. However, this is speculative and it should be emphasised that other factors such as changes to habitat quality could also influence wintering distribution and there are no studies which have confirmed short-stopping for gull species. Further investigation looking at populations throughout the flyway would be needed to confirm whether short-stopping is occurring.

For Common Gull, patterns of change since 2003/04–2005/06 were more spatially variable with the population estimates indicating large declines have occurred in England and Northern Ireland but that numbers may be broadly stable in Scotland and Wales. The resulting 2023/24–2024/25 population estimates indicate approximately 300,000 individuals in England, 200,000 in Scotland and a total of 520,000 in Great Britain. The pairwise analyses support the regional change results for the three countries that make up Great Britain but suggest numbers may be stable in Northern Ireland, although this may simply reflect the low sample size from this country. These figures suggest overall declines in national abundance but regional contrasts, with a redistribution of wintering birds towards northern areas. This northward shift may reflect changing climatic conditions and food availability. Common Gull wintering in the UK originate from both local breeding populations and migrants from Fennoscandia, the Baltic states, and western Russia (Wernham *et al.* 2002, Spina *et al.* 2022). The increase in the proportion of birds found in Scotland may therefore reflect both climatic effects and redistribution from southern regions, as well as possible shifts in European wintering patterns, i.e. Scottish breeding birds and/or Scandinavian birds being more likely to winter further north in the UK. As for Black-headed Gull, further evidence is needed to confirm whether migratory changes may be occurring.

For Herring Gull, the results from the pairwise comparison models suggest that Herring Gull densities increased across England, Wales and Northern Ireland between the previous and current survey periods, most notably in Wales and Northern Ireland, but have decreased slightly in Scotland. However, whilst the population estimates also suggest numbers may have increased in England and decreased in Scotland, they suggest that numbers have remained broadly stable in Wales and that there has been a significant decline in Northern Ireland. The differences may reflect differences in the datasets being used for the two analyses, with data for the pairwise comparisons only including sites counted in both surveys.

The pairwise results for Herring Gull also contradict with wintering waterbird trends produced by WeBS which show sustained declines, as addressed above. Herring Gulls present additional challenges for population assessment due to their widespread use of urban environments and roof-nesting behaviour during the breeding season, which makes comprehensive counts difficult (Burnell *et al.* 2023, Woodward *et al*. 2020b). Seasonal movements within the UK further complicate interpretation: some coastal breeding birds disperse inland or to estuarine and urban roosts outside the breeding period, while substantial numbers of northern and Continental European birds (particularly from Fennoscandia and the Baltic region) migrate to the UK for the winter (Wernham *et al*. 2002, Spina *et al.* 2022).

Changes in the densities of the two black-backed gull species also showed regional variability, based on the pairwise analyses. Lesser Black-backed Gull showed non-significant density increases in Scotland, Wales and Northern Ireland but significant decreases in England, whilst Great Black-backed Gull showed significant declines in England and Scotland, significant increases in Northern Ireland and a non-significant increase in Wales. However, as discussed above, there are uncertainties around the robustness of the pairwise analyses for these two species due to the small numbers present and high variability in counts at most sites. For Lesser Black-backed Gull, the vast majority of the wintering population is found in England and the analyses for Scotland and Northern Ireland are based on very small numbers of wintering birds.

4.4 Comparison of autumn and winter gull numbers

Comparisons between autumn and winter roost counts show substantial shifts in the composition and distribution of gull assemblages, which may reflect post-breeding movements and changes in habitat use rather than true changes in population size. For most species, densities recorded at traditional winter roost sites were notably lower in autumn.

Black-headed Gull and Common Gull both exhibited lower autumn densities across all countries. Population estimates suggest numbers of both species are around 15 times higher in winter than they are during the breeding season (Woodward *et al.* 2020a) and the differences observed will almost certainly reflect the fact that many wintering gulls had still not arrived in the UK by the time of the autumn WinGS counts in late September. In contrast, however, WeBS data suggest that numbers are only slightly lower in early autumn than in January (Appendix 5) at least at the sites covered by WeBS. Although they should be treated with caution (as counting of gulls is optional in WeBS), the WeBS data may suggest that a much larger proportion of the small gulls present in the UK during autumn forage at larger and estuarine waterbodies, compared to midwinter when they are spread much more widely across the wider countryside (Appendix 5).

Herring Gull followed a similar pattern, showing reduced densities at waterbody roosts in autumn. As for Black-headed Gull, population estimates indicate there is a large influx of birds during winter (winter estimates are around five times higher than breeding estimates; Woodward *et al.* 2020a), but WeBS monthly data (Appendix 5) suggest that numbers (at least at WeBS sites) are similar in early autumn and midwinter for these this species. In contrast to Black-headed Gull and Common Gull, however, there were regional differences with densities at coastal roosts in Scotland being higher in autumn than in winter. This may reflect the movement of birds arriving in the UK from Fennoscandia and passing through Scotland during autumn.

By contrast, Mediterranean Gulls showed higher autumn densities, consistent with post-breeding aggregation and post-breeding movement from the near-Continent (Wernham *et al.* 2002, Spina *et al*. 2022). Although absolute densities remain relatively low, the seasonal increase reflects the monthly data from WeBS (Appendix 5) which suggests numbers in early autumn at WeBS sites are more than double those in midwinter. However, although densities were higher during autumn at Coastal Sites where the vast majority of Mediterranean Gulls are found, densities were significantly higher during winter at Inland Sites, i.e. the very small numbers of Mediterranean Gulls that do use Inland Sites are much more likely to be observed during winter.

Seasonal changes in Lesser Black-backed Gull densities showed a similar pattern to Mediterranean Gull with autumn densities being higher than midwinter densities. This matches with the monthly changes in abundance on counts at WeBS sites, which suggest that numbers in autumn are more than double those present in midwinter (Appendix 5) and is in line with the known migratory ecology of the species. Unlike the other large gull species, Lesser Black-backed Gull is predominantly a summer species in the UK with many of the birds breeding in the UK wintering in southern Europe and North Africa (Wernham *et al.* 2002, Spina *et al.* 2022).

Seasonal changes in Great Black-backed Gull densities were less clear, with densities at roost sites across the UK being broadly similar in autumn and winter. At a regional scale, densities were higher in Scotland and Wales during autumn but higher in Northern Ireland during winter. As for Herring Gull, these regional differences may reflect seasonal movement of birds within the UK and passage movement of birds from elsewhere.

The observed differences between autumn and winter densities are also supported by BirdTrack phenological data (**www.birdtrack.net**; Appendix 6) although, unlike WeBS, BirdTrack graphs do not compare abundance but instead compare how 'reporting rate', i.e. the proportion of participants that observe a species, varies across the year.

In conclusion, the observed differences in autumn and winter roost counts across all species largely reflect known changes in abundance during the year which can be attributed to post-breeding behaviour and migratory behaviour, with numbers of Mediterranean Gulls and Lesser Black-backed Gulls peaking immediately after the breeding season and numbers of other species peaking following the arrival of birds from the north and east in winter. Whilst the counts confirm that large numbers of gulls do use the same roosts sites in autumn as in midwinter, there are some anomalies between the monthly WeBS data and seasonal WinGS counts, most notably for Black-headed Gull, as discussed above.

4.5 Population thresholds and important sites

The Phase 2 Report of the Third UK SPA review (Grady *et al.* 2025) identified insufficiencies in the proportion of the non-breeding population and the non-breeding range coverage for all six of the 'main' wintering gull species covered by WinGS (and also for Little Gull). The Phase 2 Report listed 31 cases where the six 'main' gull species could be considered further as options for additional features to 13 existing SPAs on the basis of the 2003/04–2005/06 WinGS counts and/or WeBS data, plus a further six cases where these species might be considered as features options at three new sites (Appendix 8). The Phase 2 Report also specifically recommended that the spatial distribution and numerical data from the 2023/24–2024/25 WinGS counts should be taken into consideration as part of future decision-making.

Using the counts and the new 1% thresholds reported here (section 3.2), the WinGS data offer additional support to 10 of the species/site options listed by Grady *et al.* (2025) although in one of these cases the roost site was just outside the existing SPA boundary. It has identified a total of 54 sites as nationally important for one or more wintering gull species (a total of 70 site/species combinations including the 10 listed by Grady *et al.* 2025). Only one of these sites (Morecambe Bay and Duddon Estuary SPA) is already classified for wintering gulls with both Lesser Black-backed Gull and Mediterranean Gull as features. Seventeen of the remaining 53 sites are already classified as SPAs and a further six sites are adjacent to SPAs. Eight sites supported assemblages of 20,000 roosting gulls

during winter, with one site (Solway Firth) supporting an assemblage of 20,000 roosting gulls during the autumn survey.

All six of the 'main' gull species covered by WinGS are either Red-listed (three species) or Amber-listed (three species) in the latest UK Birds of Conservation Concern listings (Stanbury *et al.* 2024), although in the case of the Mediterranean Gull the listing is due to its localised breeding distribution in the UK and it may therefore become Green-listed in the future if it continues to increase and expand its range in the UK. Three species are currently listed with wintering declines as one of the qualifying criteria (Black-headed Gull, Great Black-backed Gull, Herring Gull). The declines recorded by WinGS confirm that the declines in wintering numbers for Black-headed Gull and Great Black-backed Gull are ongoing and suggest that Common Gull and possibly also Lesser Black-backed Gull could also potentially be listed for wintering declines in future, in addition to the criteria for which they are already listed. However, the WinGS trends for Herring Gull are less clear, as discussed above, and the current listing for wintering declines may need to be reconsidered, albeit will also need to take into account that there was a historic decline in the species prior to the last WinGS (Banks *et al.* 2007).

Protection of important wintering gull roost sites is thus important to help meet the UK's biodiversity obligations arising from international treaties and agreements. During the current WinGS, extra effort was targeted at some Key Sites prioritised by the Country Nature Conservation Bodies (CNCBs) to ensure that they were counted in both 2023/24 and 2024/25 rather than just a single occasion. Given the difficulties in organising targeted roost counts for these larger sites, this will give CNCBs data covering more than a single winter to potentially offer stronger support for decision-making and recommendations relating to site protection and designation.

Where any future site designations are made based on WinGS data, the difficulties in organising counts outside WinGS will mean ongoing monitoring and site condition assessments may be challenging. Furthermore, whilst any new site designations will recognise important roosting sites for gulls, they will protect only one stage of the annual life cycle for wintering birds. As highlighted by the Phase 2 Report of the Third SPA review (Grady *et al.* 2025), even if new site designations are made to increase the proportion and range coverage of wintering gulls protected under the SPA network, SPA protection may still be considered insufficient based on ecological provision if the boundaries of SPAs exclude areas important for key ecological needs. As many wintering gulls forage away from roost sites and range widely across the countryside, additional actions are likely required to conserve gull populations.

4.6. Potential drivers of change

Reasons for the broad declines are unclear, and they may be caused by multiple factors with one or more drivers affecting different species and different populations. These may include (but are not necessarily limited to) changes to breeding habitat, human disturbance, increased predation (at breeding colonies), changes to fisheries policies (e.g. reductions in discards) and the effects of disease (including botulism and more recently as discussed above for Black-headed Gull, HPAI).

It should be noted that the effects of HPAI have not been limited to Black-headed Gull. The Animal and Plant Health Agency (APHA) detected confirmed cases of HPAI during 2022 for five of the six main species considered in this report (with the exception being Mediterranean Gull), and there were then positive reports for all six species in 2023. Fewer birds were tested in 2024 and 2025 but there were positive cases in both years for four of the six species (Black-headed Gull, Common Gull, Herring Gull, Great Black-backed Gull) (APHA 2026). The large number of positive cases suggest that both Black-headed Gull and Herring Gull were particularly affected by the HPAI outbreak.

However, whilst HPAI will have undoubtedly affected both the breeding and wintering populations of some gull species, HPAI will not be the sole driver of the population declines observed since the previous WinGS. WeBS data (Frost *et al.* 2026; Appendix 7) suggest that the populations of wintering gull species have experienced substantial declines over the last 20 years prior to the HPAI outbreak and hence will have been largely driven by factors other than HPAI.

Mediterranean Gull offers a notable exception to the declining trend observed for four of the other gull species for which population estimates have been produced in this report. This species has increased to such an extent that it has been included as a sixth 'main species' in this report. The increases have followed a substantial (and ongoing) range expansion in the UK since the 1990s. The range expansion has been attributed to several different potential drivers including climate change, the creation of new wetland habitats, improvements to existing wetlands and improved breeding success (Burnell *et al.* 2023). However, the estimated increase from the pairwise analysis (+458%) is lower than that recorded over the same period by WeBS (+2,100% using data from September to March inclusive, or +755% using data from January only). Mediterranean Gull remains extremely rare compared to the other small gull species, with only 0.17% of all small gulls identified during WinGS counts being this species. Individuals arriving at roost can still be very difficult to pick out amongst much larger flocks of Black-headed Gulls and Common Gulls at sites where they are uncommon. It is possible, therefore, that some birds were overlooked and that this species has been undercounted and hence underestimated.

The results from the survey confirm the changes in gull populations observed by other monitoring schemes and suggest broad declines are occurring across the breeding ranges of most of the gull populations wintering in the UK. However, there are some contrasts between the two different types of analyses carried out using the WinGS data and there are also contrasting results across the four UK countries for some species. These contrasts show that the effect of declines in wintering gull numbers is not necessarily uniform across the UK: for example, WinGS data suggest Herring Gull roosting behaviour may be becoming more focused on higher quality roost sites and that Common Gull may be shifting their wintering range within the UK. Further investigation into any changes in wintering gull ranges and behaviour may therefore be important to ensure future protection should populations continue to decline in the short term. Despite the declines, breeding gulls continue to cause controversy and invite strong, and often negative, opinions due to their interactions with humans within the urban environment.

This survey has demonstrated the importance of being able to achieve a coordinated, nationwide gull survey over a set time period, using a combination of a volunteer network and professional surveyors, the results of which have been presented here. Whilst the drivers of change remain complex, with developments in both terrestrial and marine environments set to increase in the future, the more potential there is for interactions and overlaps with the wintering (and breeding) gull populations. Understanding the important areas where gulls are in the wintering period will be crucial information for policy makers for future work in both development casework and in policy decisions.

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6. Appendices

Appendix 1. Website and survey information for the 2023/24–2024/25 Winter Gull Survey.
As a reflection of the movement to online since the previous Winter Gull Survey, surveys generally have taken a move away from paper recording forms. To reflect the needs and preferences of both counters and data analysers, an online system was built to host site maps, counter and organiser information and amanagement tools and data submission and storage.

Figure A1.1. Vacant sites map as displayed to prospective volunteers on a public website (www.app.bto.org/wings). This is the page where prospective counters would navigate to sites and request to cover them. Requests made on the vacant sites map were viewable by WinGS Local Organisers on the webapp, and they also received notification of requests via email. Priority levels were added to the site list during the second winter of surveys to indicate where sites required additional survey effort for the second winter if they had not been counted sufficiently in the first.

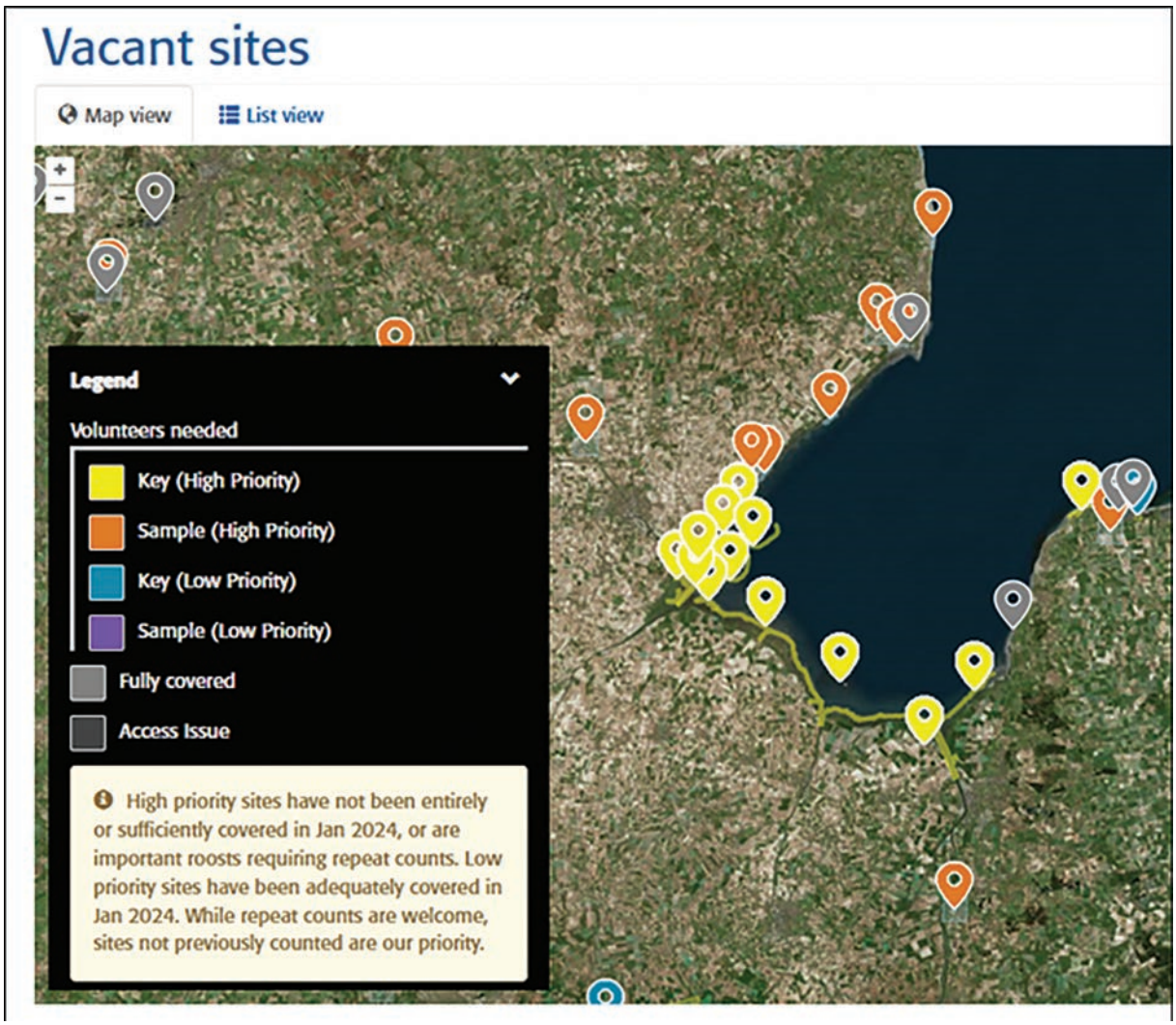


Figure A1.2. Count methodology documentation shared with counters. These methods closely followed documented methodology shared with counters for previous Winter Gull Surveys to ensure consistency in count methods between surveys. Methods were shared with counters online and automatically once their request to cover a site was received.

Winter Gull Survey Methodology & counting techniques

Carrying out a Roost Count

Counting techniques

The key survey dates are January **21st, 2024**, and January **19th, 2025.** Additional Key Site surveys in Autumn 2024 will run from August to October. Gull Roost Counts at both key and sample sites are to take place at dusk. You should arrive at your site a minimum of two hours before darkness. Once you are at a suitable vantage point, you should count and identify any gulls already roosting on the inland or coastal water body. Then, count and identify gulls as they arrive at the roost along flightlines. Counts for each species should be made up until dark. Please also estimate the number of gulls that have left the roost before dark and remove this from the total reported count. To avoid double counting only include gulls that are using the roost area in your count and exclude gulls continuing on to a different area.

If it is not possible to distinguish between Black-headed Gulls and Common Gulls during all or part of the count, or on a particular flight line, please provide a count of 'Unidentified Small Gulls'. Likewise if it was not possible to distinguish between Lesser Black-backed Gulls, Herring Gulls and Great Black-backed Gulls during all or part of the count, please provide a count of 'Unidentified Large Gulls'.

Counting large, multi-species aggregations of birds away from breeding areas can be difficult. Birds during the non-breeding season may be more sensitive to disturbance and as they are not tied to an area by a nest they are unlikely to return to the same roost. Please take care not to disturb the roost.

How are counts synchronised?

To ensure that the data collected by WinGS can be used to produce national population estimates and to monitor trends, between-site count synchrony is important. Hence, 'key dates' are recommended for January WinGS Counts. This reduces the likelihood of birds being double-counted or missed as movement between roost sites throughout winter is likely. Coordinated counting is especially important at Team Sites. Team Sites are key roosting areas that have been identified by WOs as requiring a team of people to ensure proper coverage. It is the Team Leaders responsibility to ensure that all observers assigned to that site carry out coordinated counts. If you are assigned to a Team Site, be sure you know who the Team Leader is. The Team Leader could be the WO or another volunteer. If you are unsure, contact the WO of your region.

The key dates for 2024 and 2025 are pre-selected to be complementary to the WeBS priority dates. However, the time of high tide varies around the country, and at some coastal sites this may necessitate counts on alternative dates, when the local tidal conditions are more conducive to counts at dusk. If you are covering part of a team site be sure that you know when the agreed date for the site is.

There are many circumstances that can arise that may mean you are unable to complete your count for WinGS on the key or agreed site count date due to illness or other prior commitments. If you are covering a non-team site you may make a count as close to the specified date as possible. Please discuss this with your WO if alternate arrangements need to be made at your site. However, if you are a counter for a Team Site that requires coordination with team members, please inform your WO or Team Leader as soon as possible if you are unable to make the agreed or key survey date for that site as a replacement may need to be found.

Count Conditions

Count accuracy should also be recorded as counts may be influenced by factors such as disturbance and visibility. Cover of suitable habitat should also be recorded. For Inland Sites, please record an approximate value for the percentage of surface water area within your site covered by ice. For Coastal Sites, you are asked to record the state of the tide e.g. rising, falling, high, low.

Photo by Neil Calbrade @ BTO

Appendix 2. Online and paper recording forms for the 2023/24–2024/25 Winter Gull Survey.

Figure A2.1. Online data submission form where most counters submitted their data. The webpage recognised the habitat of the site for which the volunteers was inputting data for and added in additional fields based on that information (i.e. ice cover for Inland Sites and tide state for Coastal Sites). Additional gull species, outside of the six targets, were accepted to the form through an option to add species rows. Comments on both the visit details and count details were accepted here.

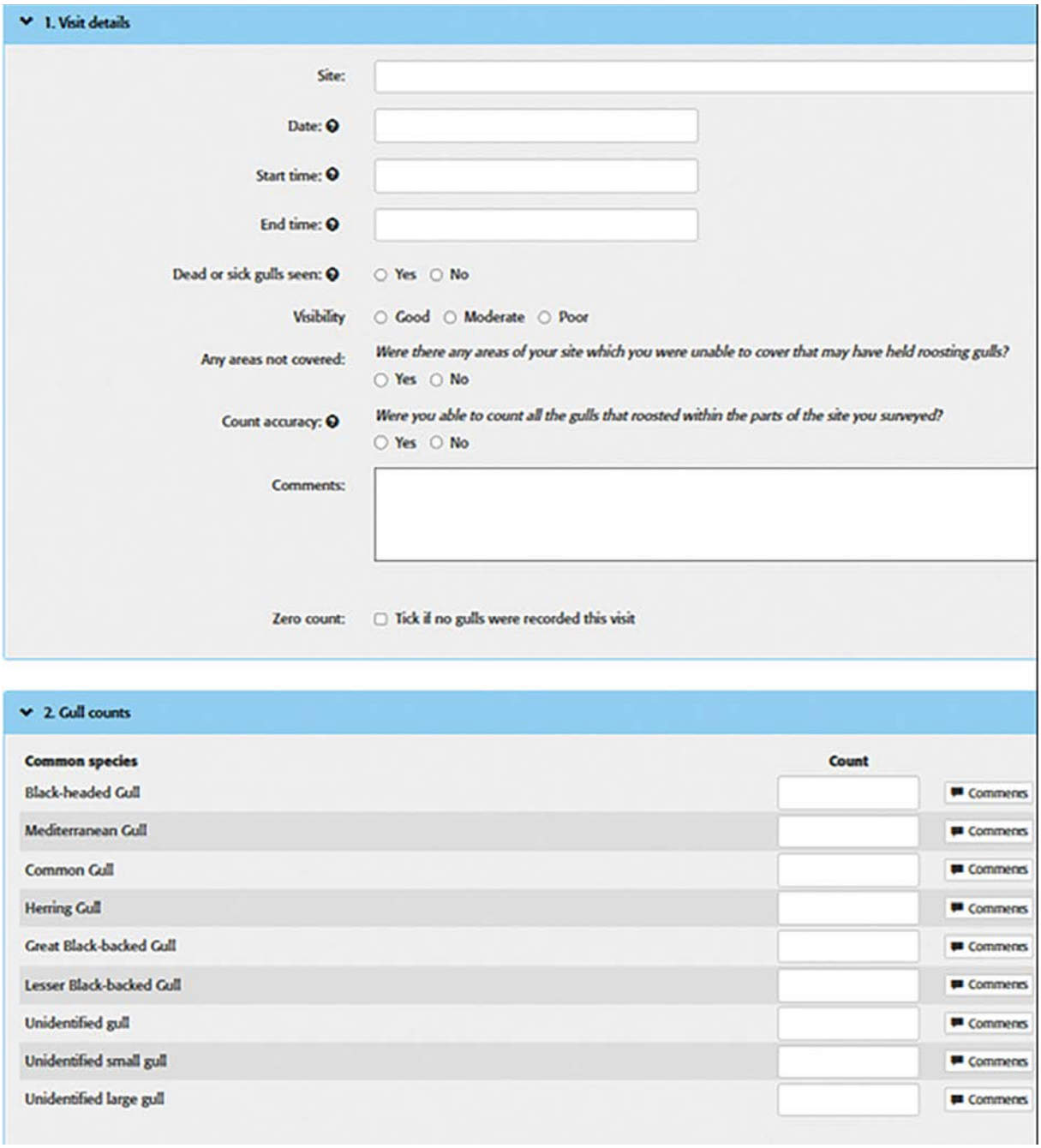


Figure A2.2. Page one of the Coastal Sample Site paper count form. This page gave an overview of the survey instructions and highlighted the site type. As the instructions and variables recorded changes slightly depending on the site type (Key or Sample) and the habitat (Coastal or Inland), separate count forms were created for each of the four site types. Paper count forms were available on the WinGS BTO webpage and were printed and posted to counters at their request.

WINTER GULL ROOST SURVEY
COASTAL SAMPLE SITE COUNT FORM

INTRODUCTION

The Winter Gull Survey (WinGS) for 2023/24–2024/25 has returned after a gap of 20 years. The last survey took place from 2003/04-2005/06 and concluded that the UK and near-shore coastal waters supported over 3.8 million wintering gulls at that time. Updated information on population trends is necessary to contribute to and inform effective conservation actions for gulls (*Bird Study* 13, 60:1, 87-101).

The 2023/24-2024/25 Winter Gull Roost Survey (WinGS) aims to produce total winter (January) gull population estimates for the UK. To do this the survey will cover **a.** Inland and Coastal Key Sites **b.** Randomly Selected Inland Samples and **c.** Randomly Selected Coastal Samples. Key Sites were identified from previous winter gull roost surveys and other recent reports.

The populations of gulls in the UK vary considerably over seasons. In order to investigate this change, we encourage additional Key Sites counts throughout autumn. We would also welcome Supplementary Counts from other smaller roosts throughout the survey period.

INSTRUCTIONS

Please read these instructions carefully before making your visit.

1. **THIS FORM IS FOR RECORDING SINGLE COUNTS OF ROOSTING GULLS AT COASTAL SAMPLE SITES IN JANUARY 2024.**
2. **SITE MAP: Ask your WinGS Organiser to download and print your site map from WinGS Online.** Please study the map and identify possible vantage points. The vantage point should be chosen for the view it provides of the coast and not be biased by the distribution of roosting flocks. Please do not include any counts of gull present outside of the count boundary designated on the map. Record all the gulls roosting on the sea, cliffs, small islands or intertidal areas for a distance along the defined stretch of coast. Please attach your map to this count form with annotations of the observer position and location of the roost / flight lines.
3. **COUNTER DETAILS:** Please fill in your details and the name of your local co-ordinator.
4. **DATE & TIME: Sample Sites require a single visit in January.** Record the date of your visit overleaf and then the approximate start and finish times using the 24-hour clock (e.g. 1500, 1700). You should aim to start your roost count about 2 hours before dark and should stop as soon as it is too dark to count
5. **COUNTS:** Counts should be made for each of the species arriving at roosts up until dark, though should take into account any birds that may have departed before then. **Counts should only include birds that roost on the sea up to 2km out, cliffs, small islands or below the high tide mark within the defined site boundary**. Counts of birds roosting behind the high water mark on terrestrial habitats and those that fly over the Count Section, but do not roost within it should be excluded. Please **do not** attempt to estimate the numbers of gulls that may have joined roosts after dark or any that may have left after dark.

   The best method of counting gulls at roosts is to count birds on the flight lines going to roost. Counting birds on the water can be very difficult especially if there is any wind. Please be aware if you are counting any sub-sites or team sites that may necessitate coordinated counting efforts. It may be necessary to familiarise yourself with the site before the survey date.

   If it was not possible to distinguish between Black-headed Gulls, Common Gulls and Mediterranean Gulls, during all or part of the count, or on a particular flight line, please provide a count of '**Unidentified Small Gulls'**. Likewise, if it was not possible to distinguish between Lesser Black-backed Gulls, Herring Gulls and Great Black-backed Gulls during all or part of the count, please provide a count of '**Unidentified Large Gulls'**.

   If it was not possible to identify birds to species or place them into one of these size classes, counts should be entered as '**Unidentified (unspecified)'**. Any species noted that are not on the list should be recorded as **'Other Species'** – please specify what these are (i.e. Glaucous Gull, Yellow-legged Gull, Kittiwake).

   If the site was not visited but the count of gulls is assumed to be zero based on habitat, please put a ✓ in the box at the bottom of the table (please only submit assumed zeros after consulting with your WinGS Organiser).

   Make a note of whether water bodies within the sample square had any ice cover and whether, in your opinion, counts were lower than expected due to visibility/weather conditions or disturbance.

   PLEASE RETURN FORMS (EVEN IF YOU VISITED THE SITE AND SAW NO GULLS) BY 28 FEBRUARY 2024, EITHER TO YOUR LOCAL CO-ORDINATOR OR TO: WinGS, The Wetland & Coastal Ecology Unit, BTO, The Nunnery, Thetford, Norfolk IP24 2PU.

Figure A2.2. (cont.): Page two of the Coastal Sample Site paper count form. This page outlined the use of the paper count form and allowed space for relevant counter and survey information. The variable specific to habitat type (i.e. ice cover or tide state) changed depending on the count form type.

COMPLETING THIS PAGE: Please record your name and address and the name of your local co-ordinators at the top.

Insert visit date and times and your gull counts in the table below. If species identification was not possible, use the most suitable category (e.g. Unidentified Small Gull) – see instructions. Please record the numbers of gulls roosting within your site. If the site was visited and no gulls were present, please tick the box above the column. If you split your count unit into smaller count units, please use separate columns to count them and notate your printed map with this information.

Please also make a note of Tide State at dusk and inform us whether the numbers of gulls counted may have been affected by weather conditions, visibility, or disturbance.

WinGS Reference Code [_____] **WinGS Site Name [_____]**

OBSERVER(S): **ADDRESS:** **e-mail:**

WinGS CO-ORDINATOR:

COUNTS				
DATE(S) (e.g. 22/01/24)				
TIME (use 24 hour clock)	START			
	FINISH			
		Please ✓ box if the site was visited and no gulls were observed		
Species	**Code**	❑		
Black-headed Gull	BH			
Common Gull	CM			
Mediterranean Gull	MU			
Unidentified Small Gull				
Lesser Black-backed Gull	LB			
Herring Gull	HG			
Great Black-backed Gull	GB			
Unidentified Large Gull				
Unidentified (unspecified)				
Other Species (specify):				
TOTAL				
Please ✓ box if the site was not visited as you were confident that no gulls were present		❑		

Conditions:
Visibility: GOOD MODARATE POOR
(Please circle)

State of Tide at Dusk:

RISING HIGH

FALLING LOW (Please circle)

Did you see any dead or sick gulls?
YES NO (Please circle)
If yes, please give details:

Any areas within boundary not covered?
YES NO (Please circle)
If yes, % area of suitable roost habitat not surveyed: _____

In your opinion, were the numbers of gulls counted lower than expected due to:

Visibility/Weather conditions: YES NO
(Please circle)
Please specify why:

Disturbance: YES NO
(Please circle)

Please specify the cause of the disturbance:

Other Comments:

Appendix 3. Unrounded population estimates estimates of wintering gulls from the 2023/24–2024/25 Winter Gull Survey.

	Black-headed Gull	Common Gull	Mediterranean Gull
England	957,394 (800,143-1,152,456)	304,813 (242,684-375,980)	3,794 (1,751-10,367)
Scotland	91,680 (71,481-113,168)	195,105 (153,861-241,380)	63 (43-99)
Wales	49,443 (27,700-98,545)	12,101 (5,398-46,884)	295 (118-2,156)
GB	**1,101,791 (944,433-1,307,189)**	**515,834 (438,175-604,179)**	**4,337 (2,131-11,501)**
NI	12,197 (8,379-16,987)	2,120 (558-4,666)	8 (3-15)
CI	532 (78-1,179)	5 (0-15)	9 (0-21)
IOM	6 (0-15)	2,112 (1,184-3,258)	0 (0-0)

	Lesser Black-backed Gull	Herring Gull	Great Black-backed Gull
England	52,871 (38,006-72,770)	406,517 (344,073-479,856)	16 164 (11,055-25,300)
Scotland	684 (379-1,366)	226,751 (189,689-267,270)	7,765 (6,084-10,302)
Wales	10,982 (2,532-27,888)	82,042 (54,314-139,451)	1,233 (751-5,235)
GB	**65,856 (45,980-92,350)**	**720,182 (637,278-814,118)**	**25,535 (19,881-36,593)**
NI	188 (142-384)	8,132 (5,453-9,702)	433 (114-2,957)
CI	6 (0-12)	1,174 (182-2,397)	62 (17-111)
IOM	1 (0-3)	2,012 (226-4,908)	118 (44-250)

Appendix 4. WinGS Species Distribution Mapping.

Maps highlight the raw counts at targeted sites for the Winter Gull Survey. Yellow markers mark the location of the site, and the relative size of the marker is indicative to the size of the count. Note that the relative size of count points is not comparable across figures and relevant legends show the size categories on each figure. Winter distribution maps display counts across both key winter periods, taking the largest count for a site where a count exists in both years. Autumn distribution maps display counts from September (the key month for autumn counts and within which most autumn counts occurred). Empty markers indicate where zero counts were made. While inferences can be made about distributional changes based on these maps, it is important to keep in mind that the coverage levels for autumn were far lower than for winter, so the datasets are not directly comparable. However, they can give an indication as to distributional changes, especially where zeros have been recorded.

Figure A4.1. Black-headed Gull winter distribution map.

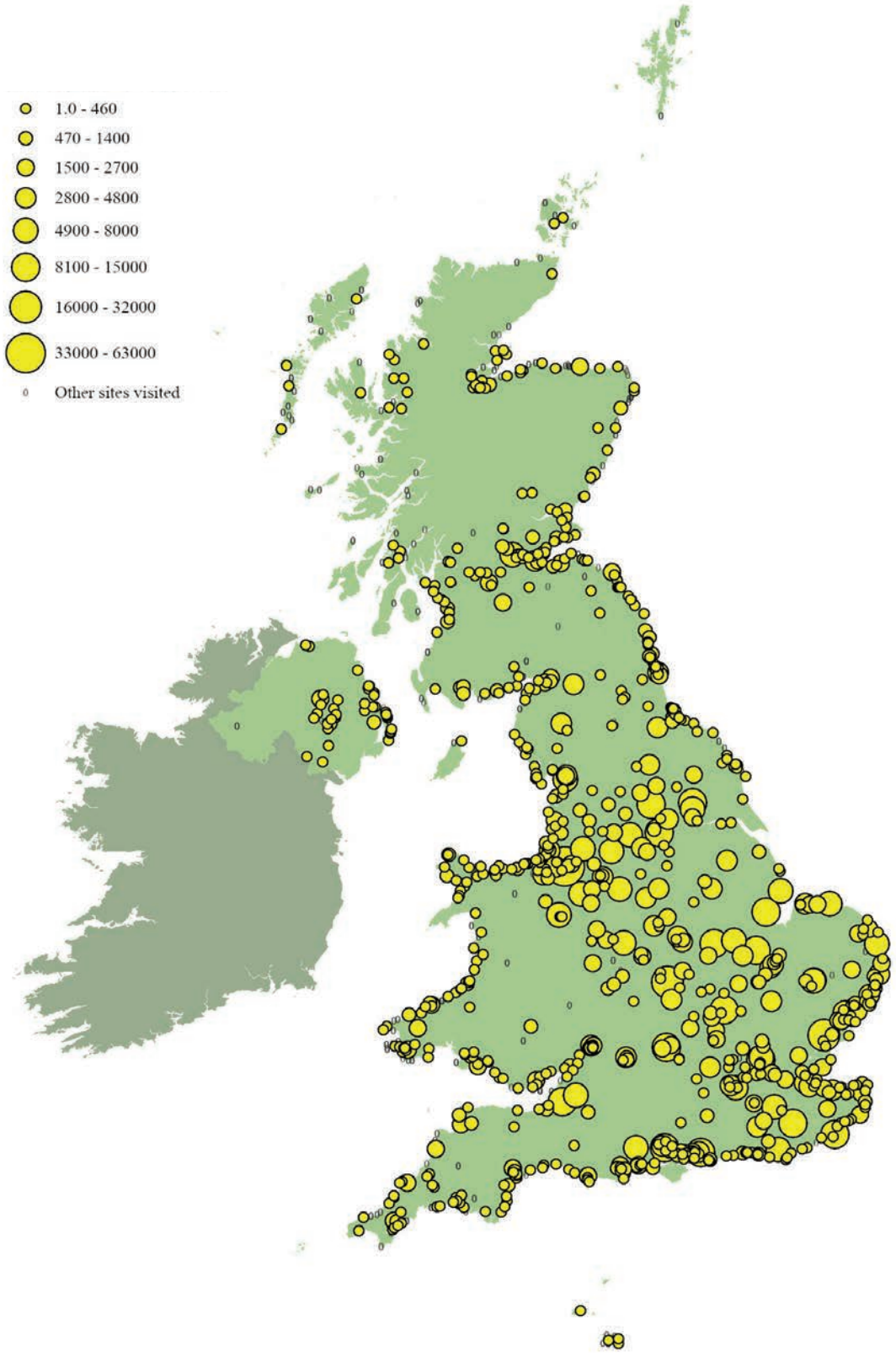


Figure A4.2. Black-headed Gull autumn distribution map.

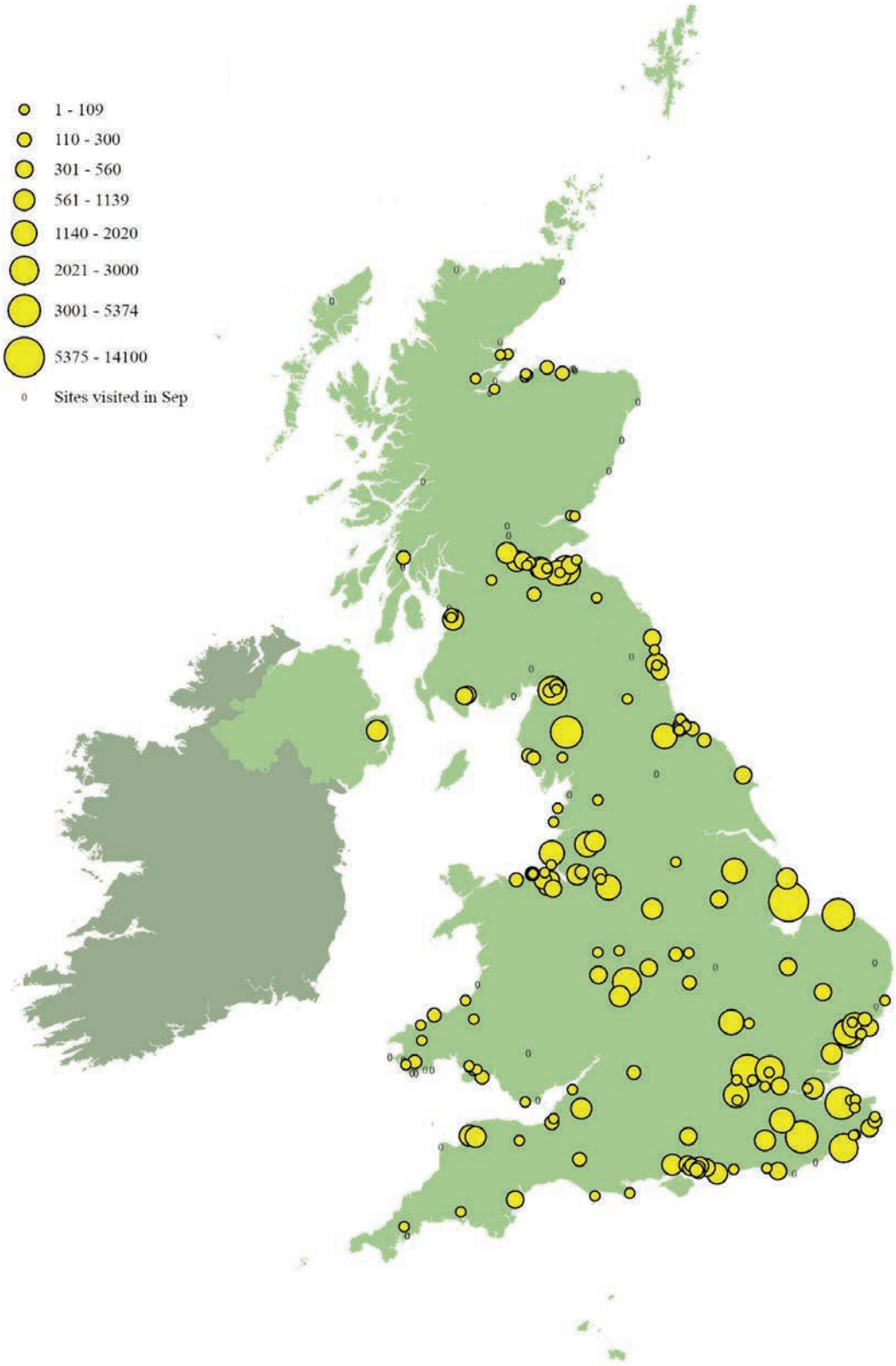


Figure A4.3. Common Gull winter distribution map.

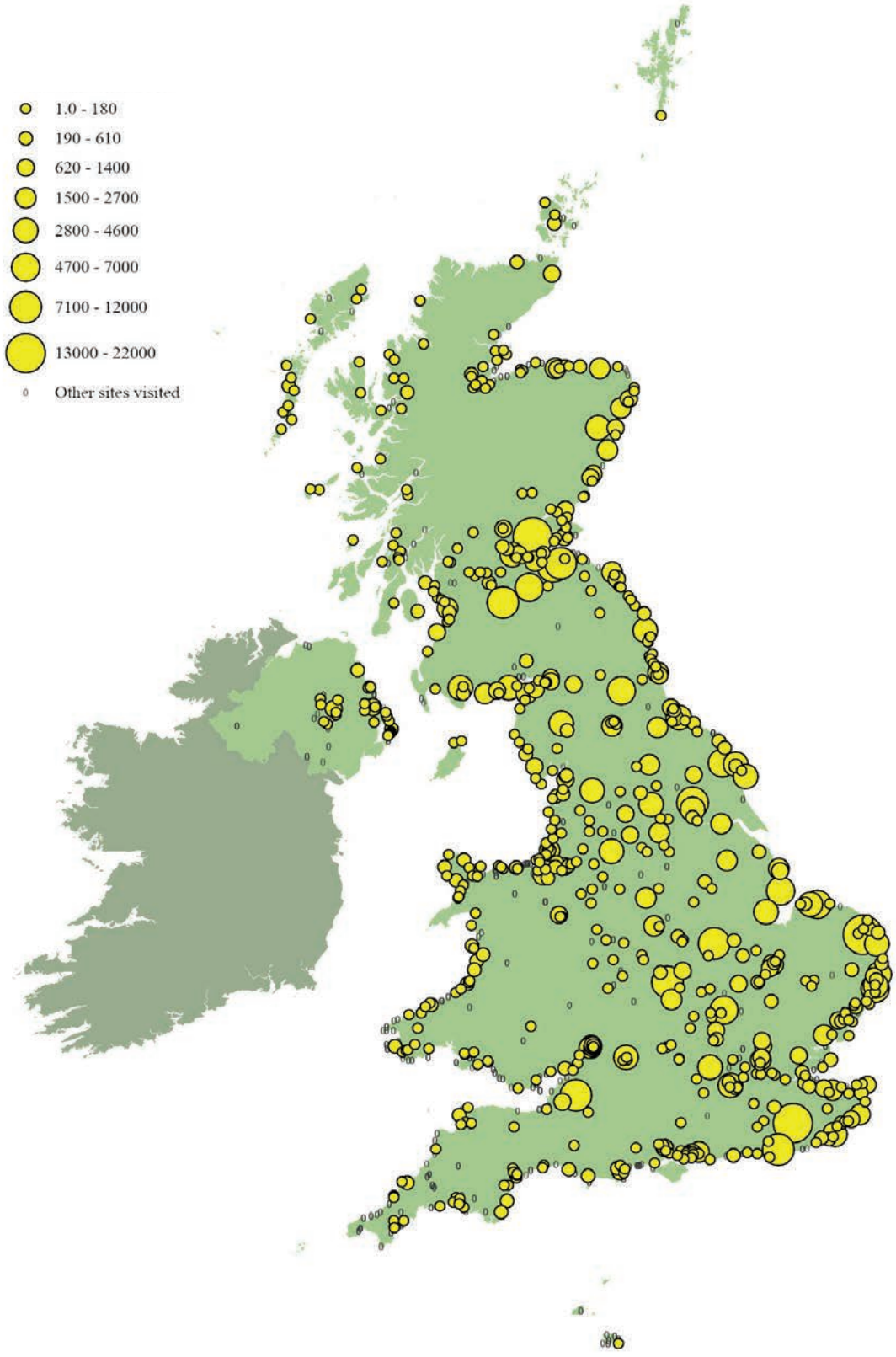


Figure A4.4. Common Gull autumn distribution map.

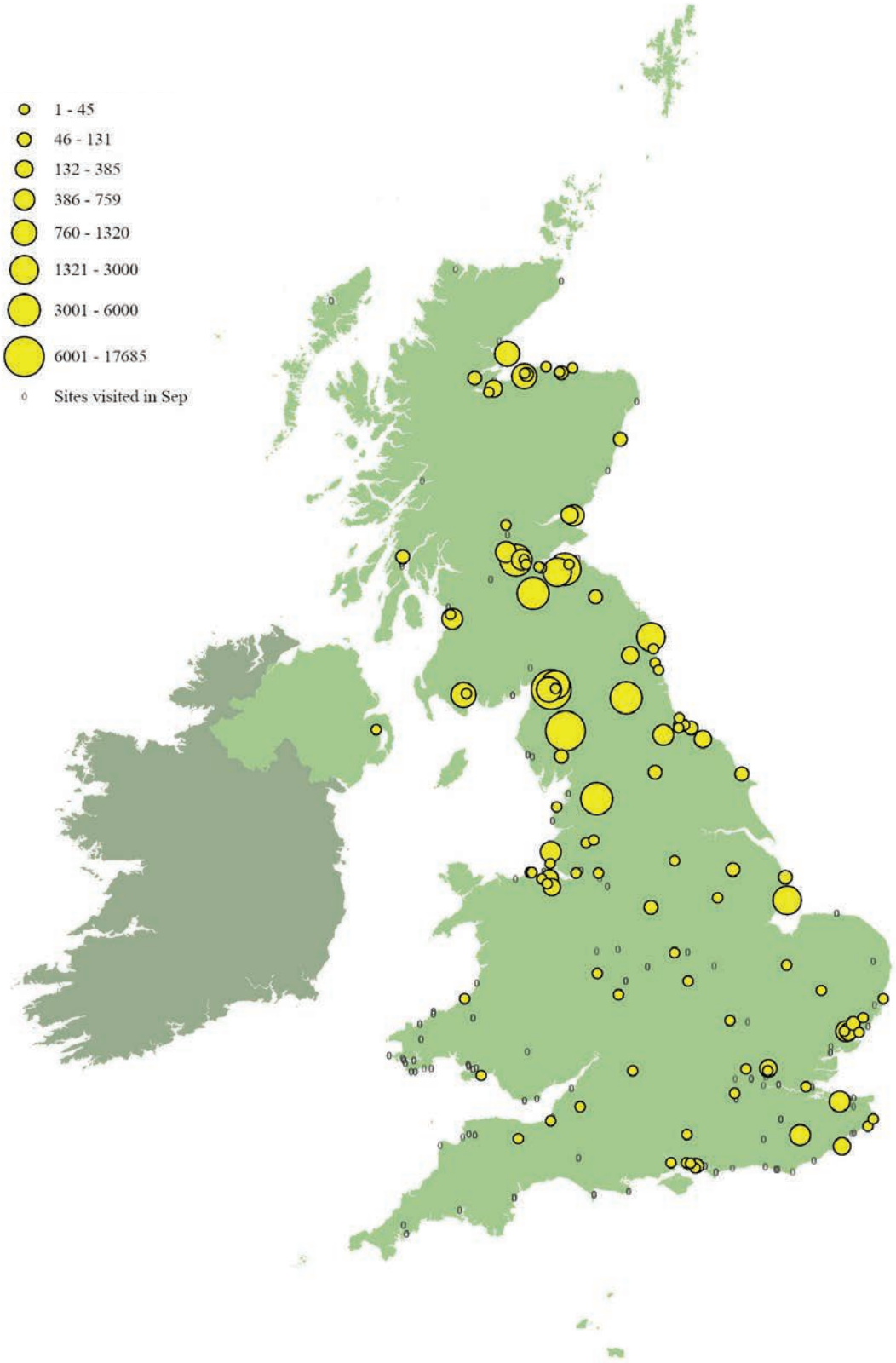


Figure A4.5. Mediterranean Gull winter distribution map.

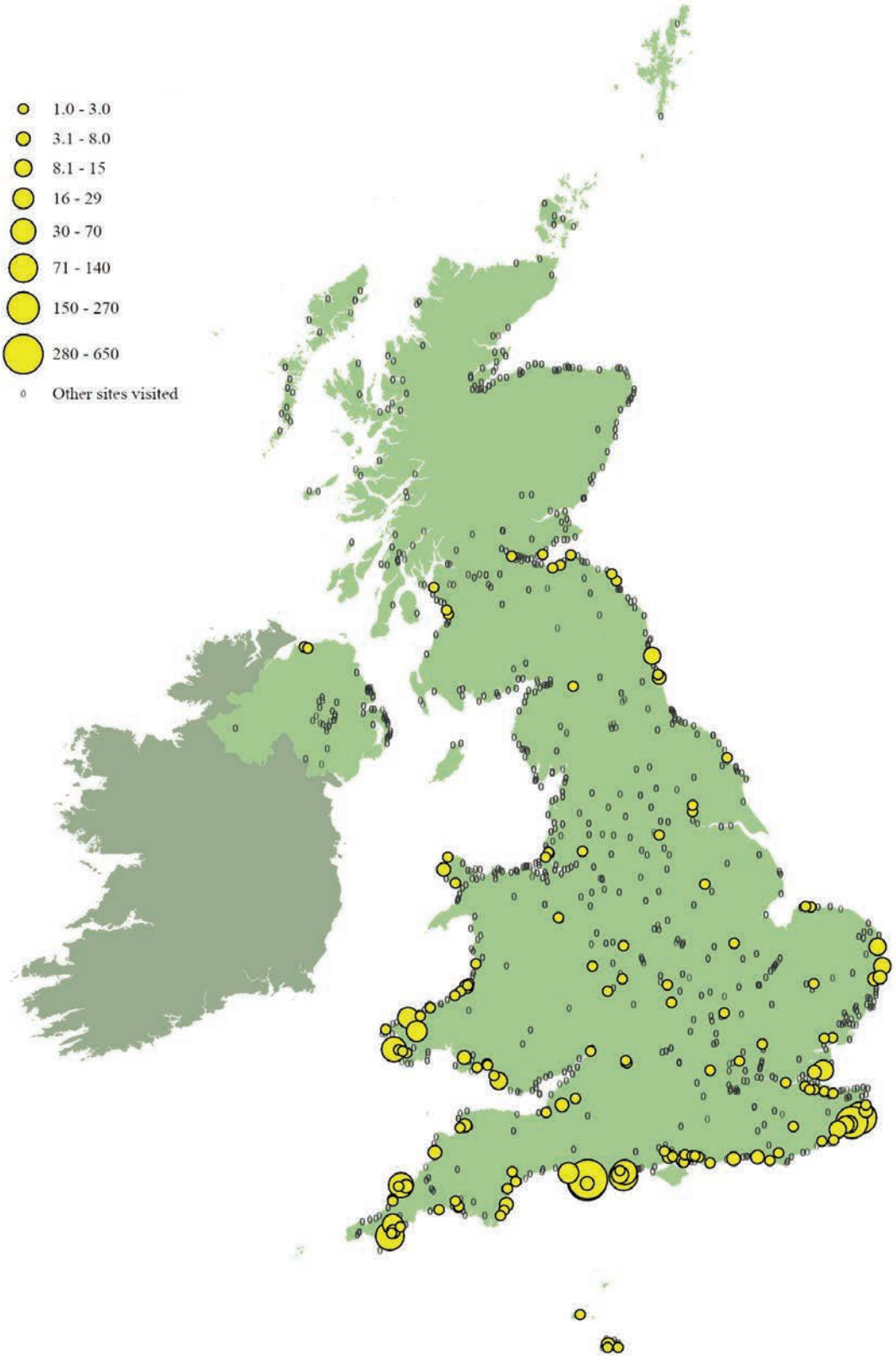


Figure A4.6. Mediterranean Gull autumn distribution map.

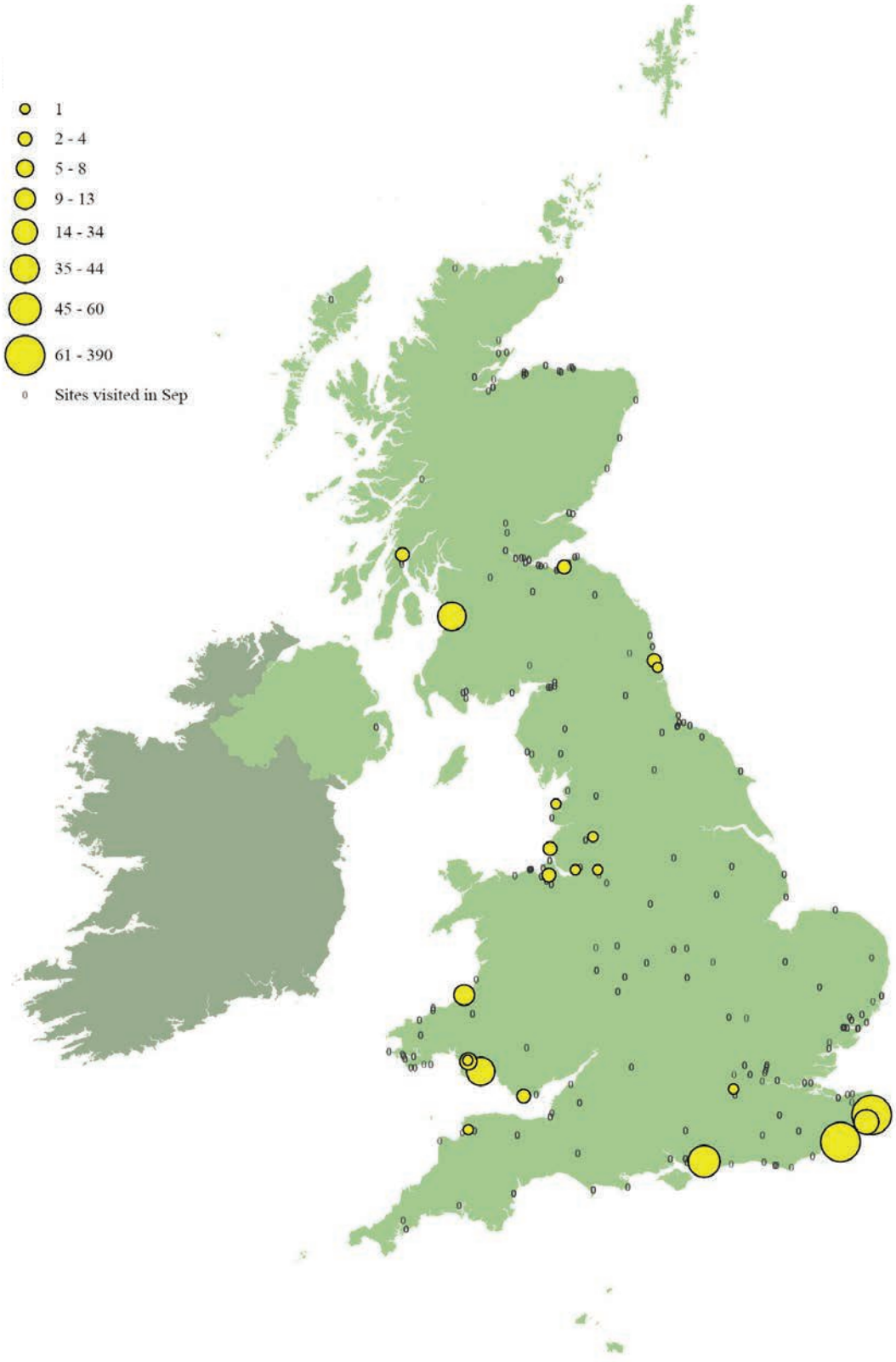


Figure A4.7. Lesser Black-backed Gull winter distribution map.

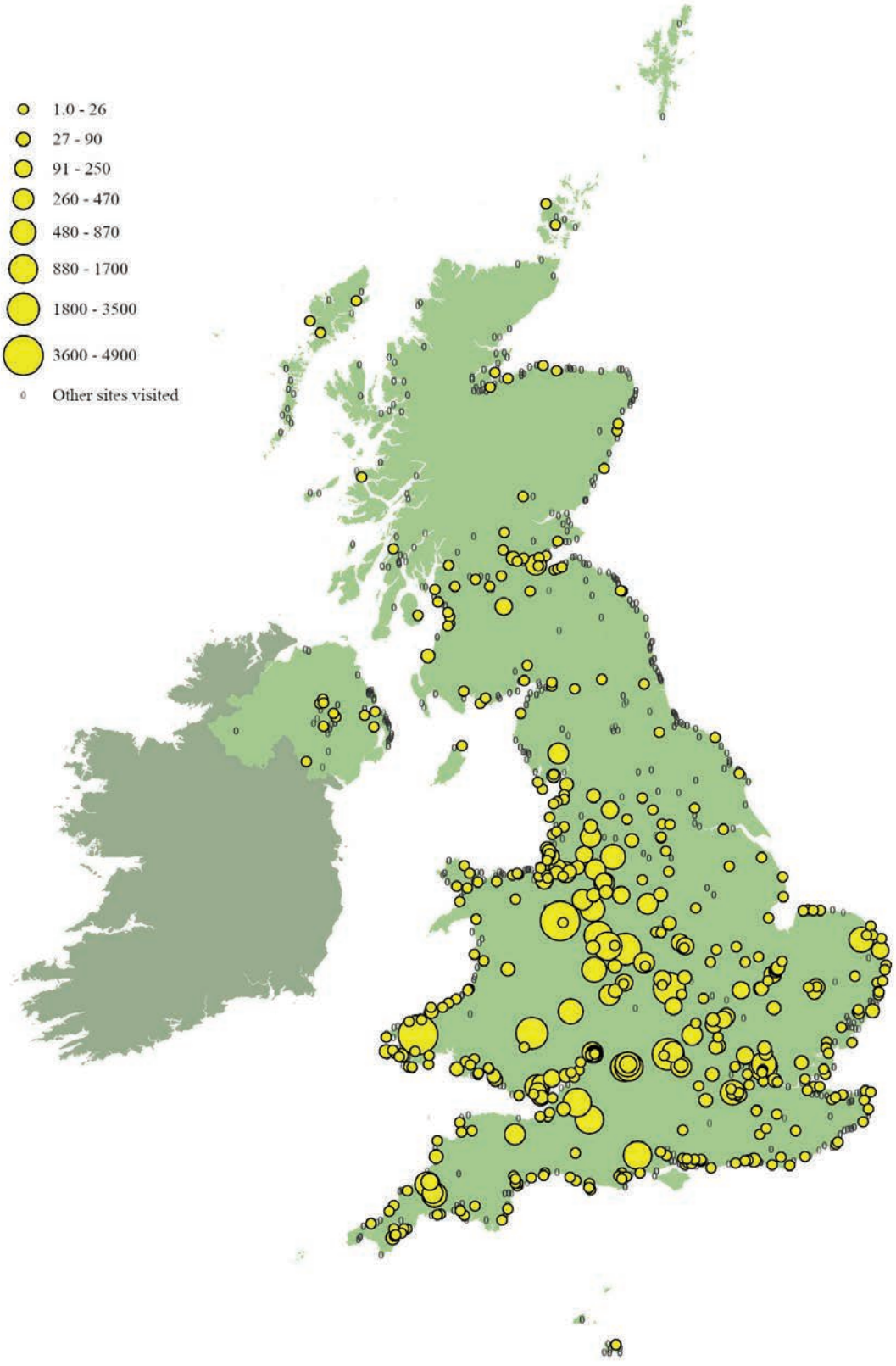


Figure A4.8. Lesser Black-backed Gull autumn distribution map.

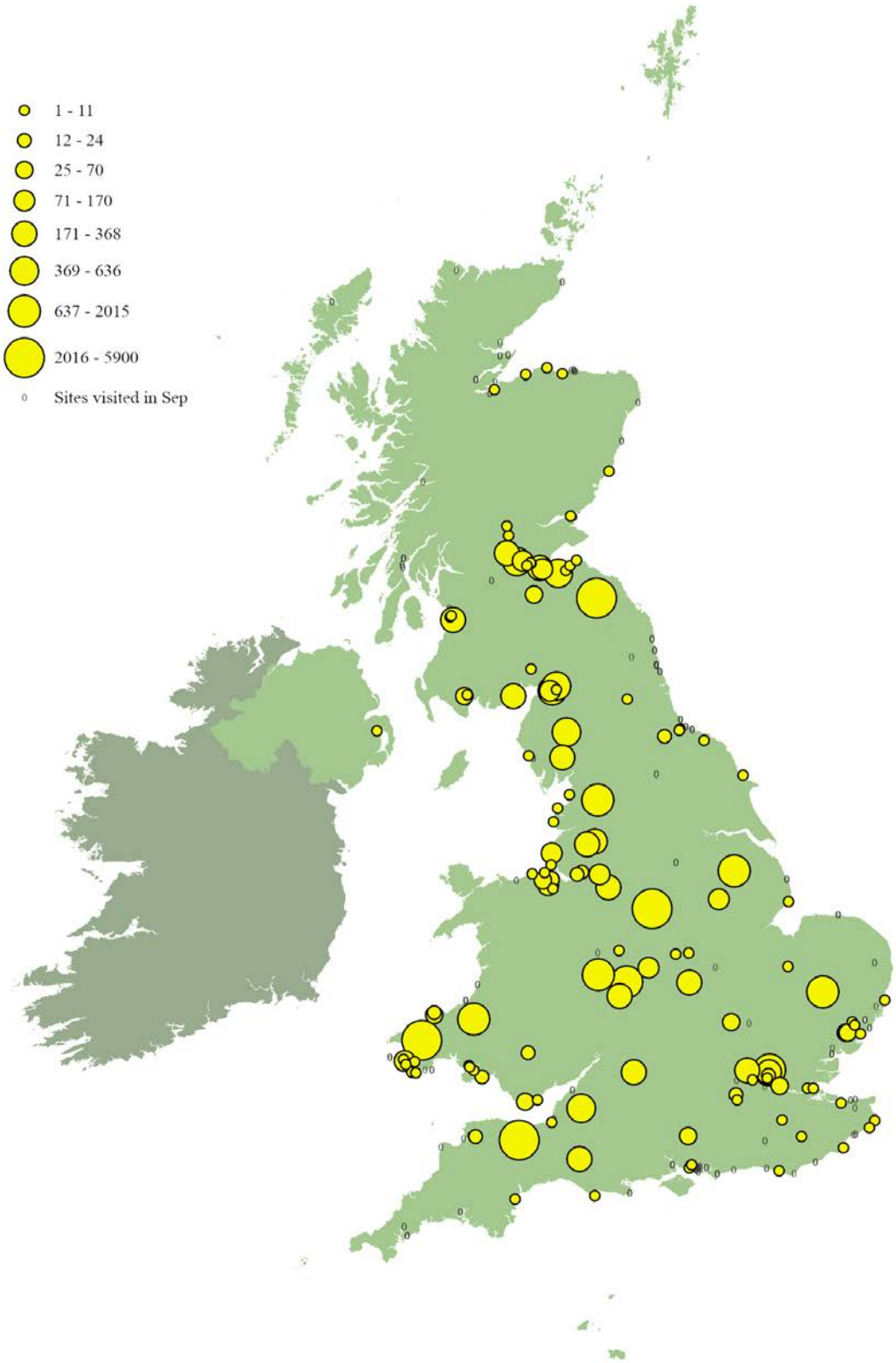


Figure A4.9. Herring Gull winter distribution map.

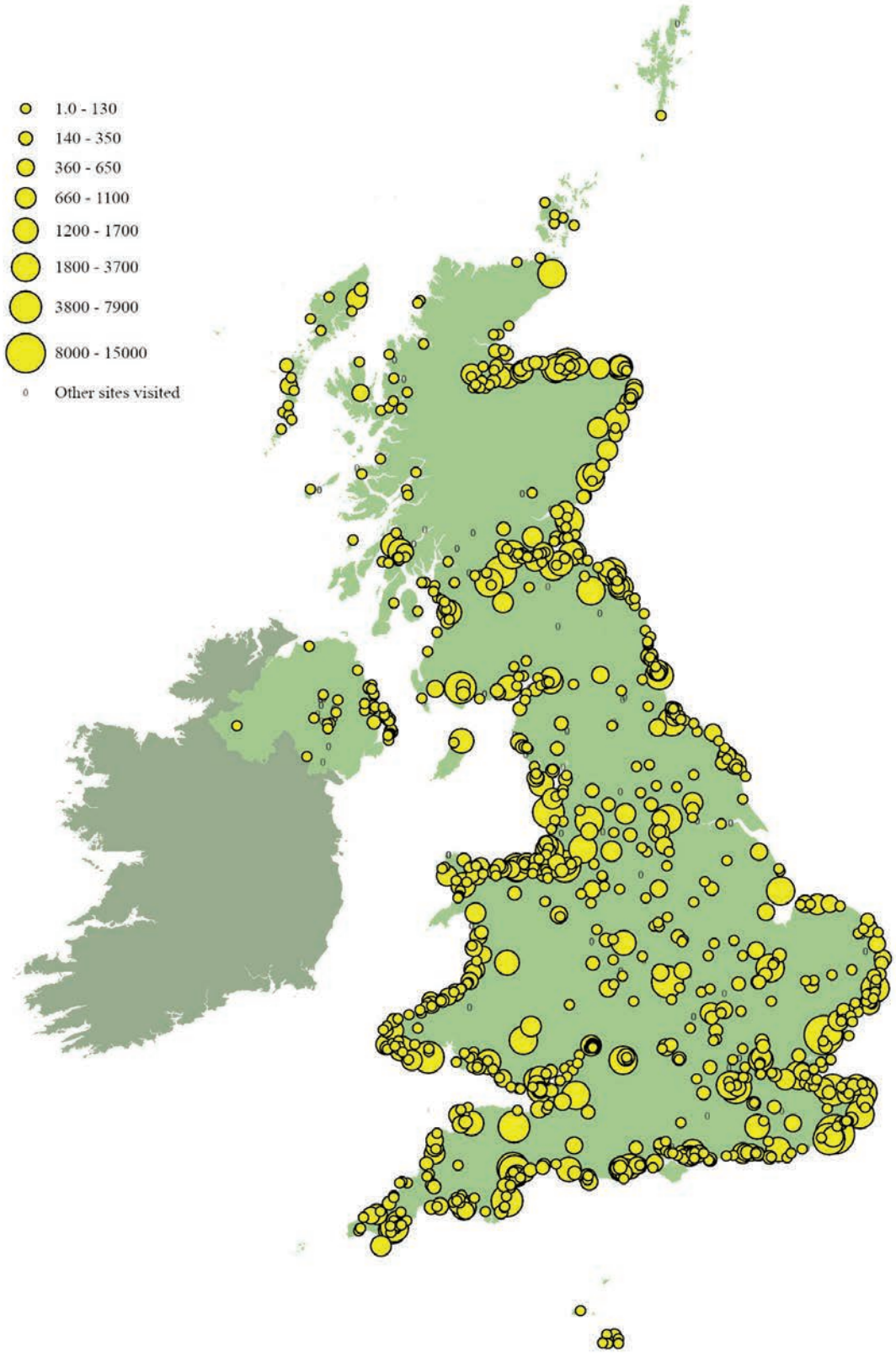


Figure A4.10. Herring Gull autumn distribution map.

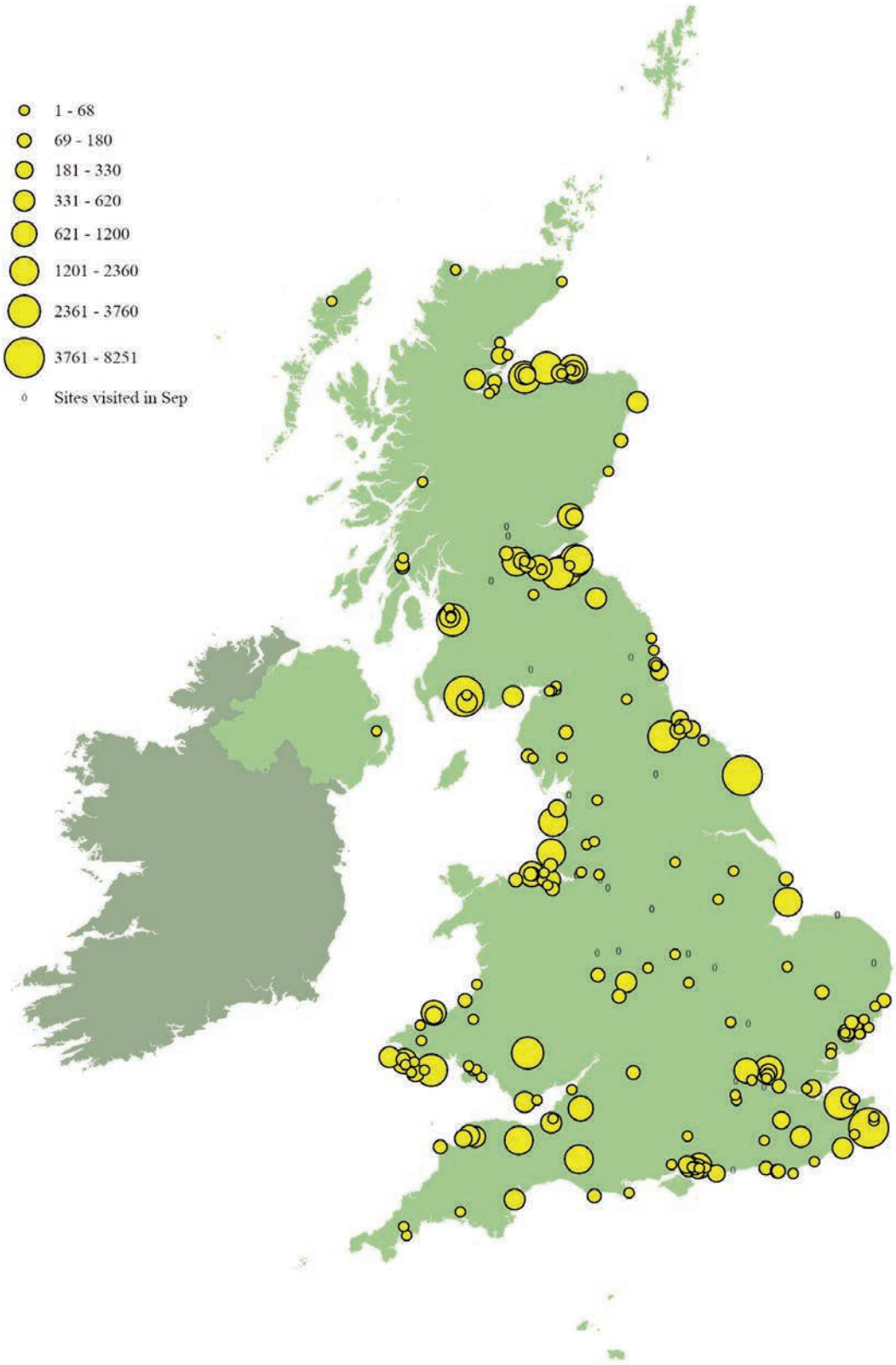


Figure A4.11. Great Black-backed Gull winter distribution map.

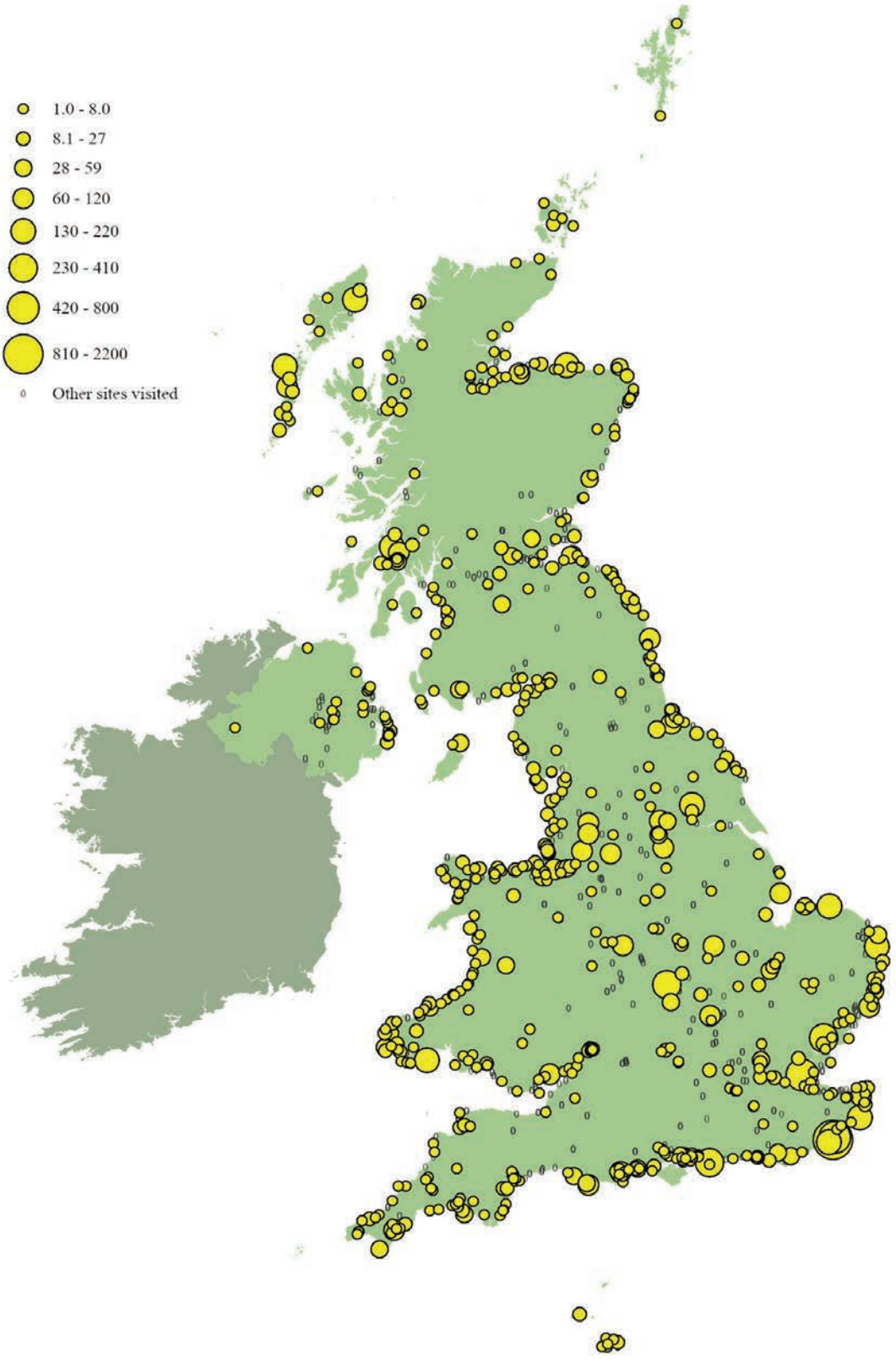
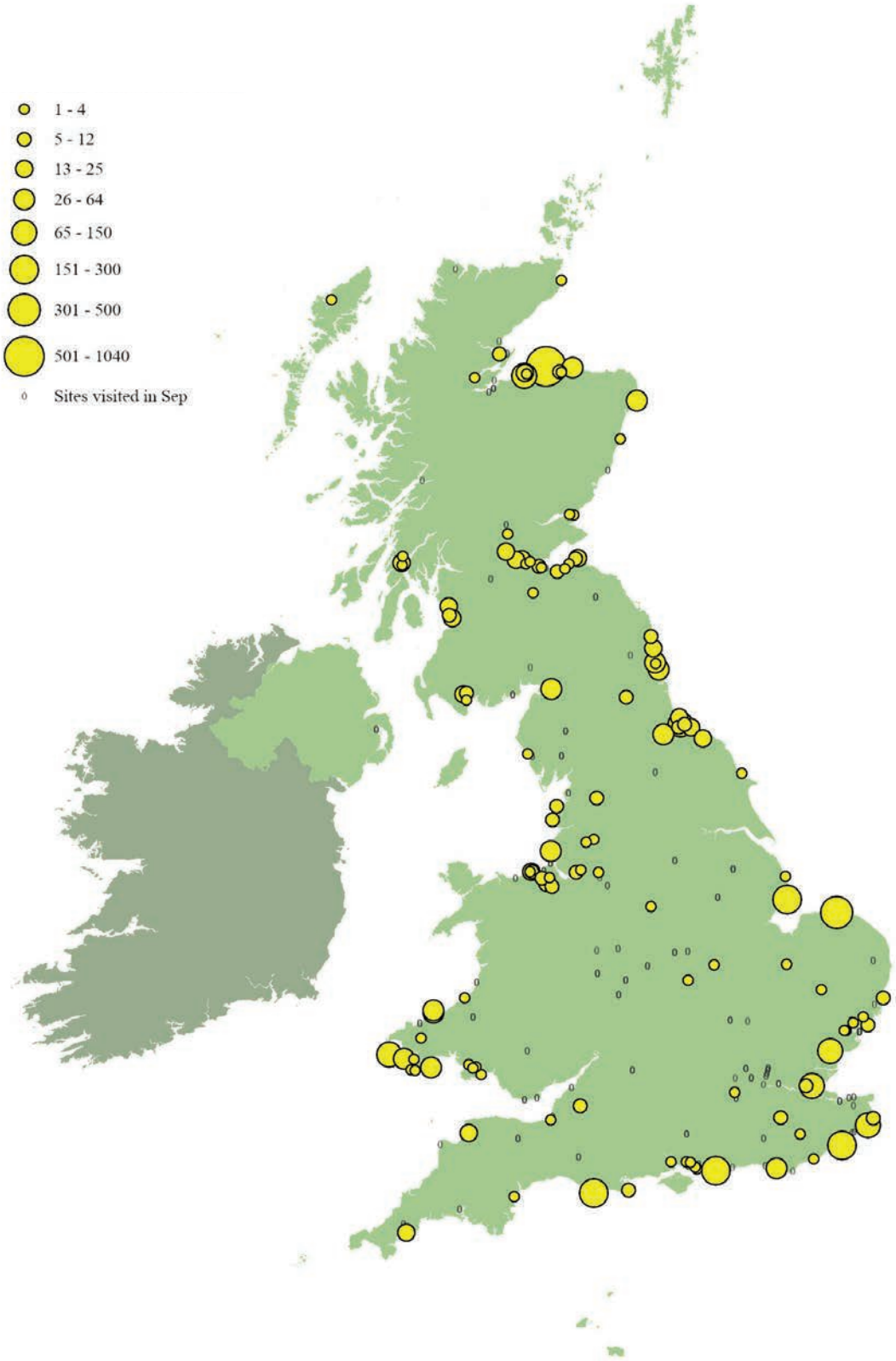


Figure A4.12. Great Black-backed Gull autumn distribution map.



Appendix 5. Monthly indices of gull numbers from the Wetland Bird Survey (WeBS).

The graphs below compare monthly estimates from the BTO/JNCC/RSPB Wetland Bird Survey (WeBS) for the UK as published in the 2023/24 WeBS Report Online (Calbrade *et al.* 2025). The green bars show monthly estimates for the WeBS year 2023/24, and the blue line and orange shading show the mean values and range for the five preceding WeBS years (2018/19 to 2022/23). All values shown are index values, with the highest monthly estimate in 2023/24 set to 100 and all other values indexed in comparison to this value. All graphs shown are for the UK: Graphs for Great Britain and for the four constituent countries of the UK are available on the WeBS Report Online (**https://app.bto.org/webs-reporting/numbers.jsp**).

Figure A5.1. United Kingdom Wetland Bird Survey (WeBS) monthly indices for Black-headed Gull.

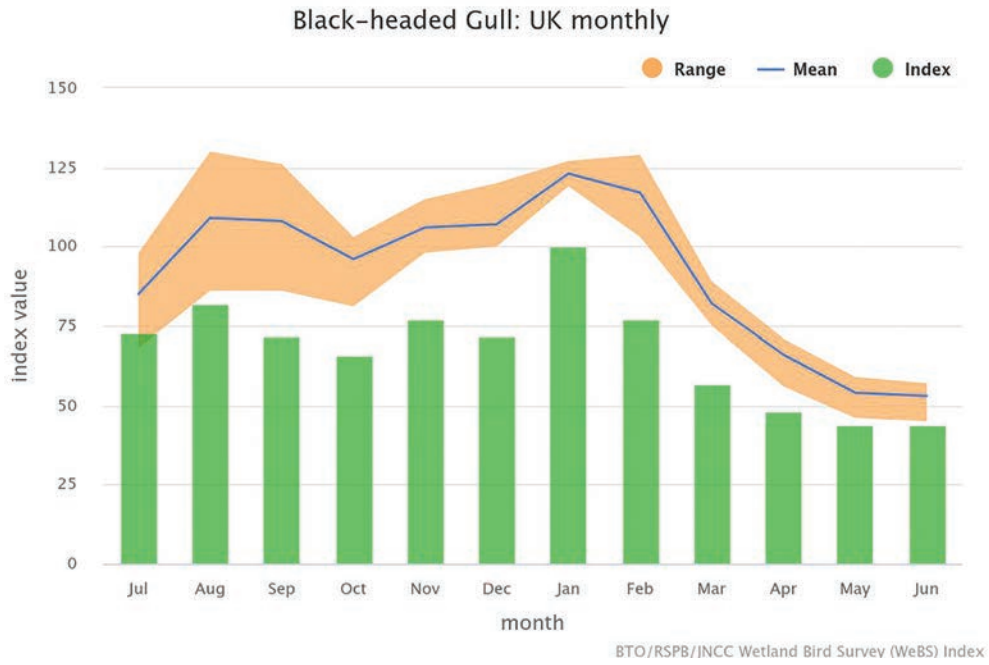


Figure A5.2. United Kingdom Wetland Bird Survey (WeBS) monthly indices for Common Gull.

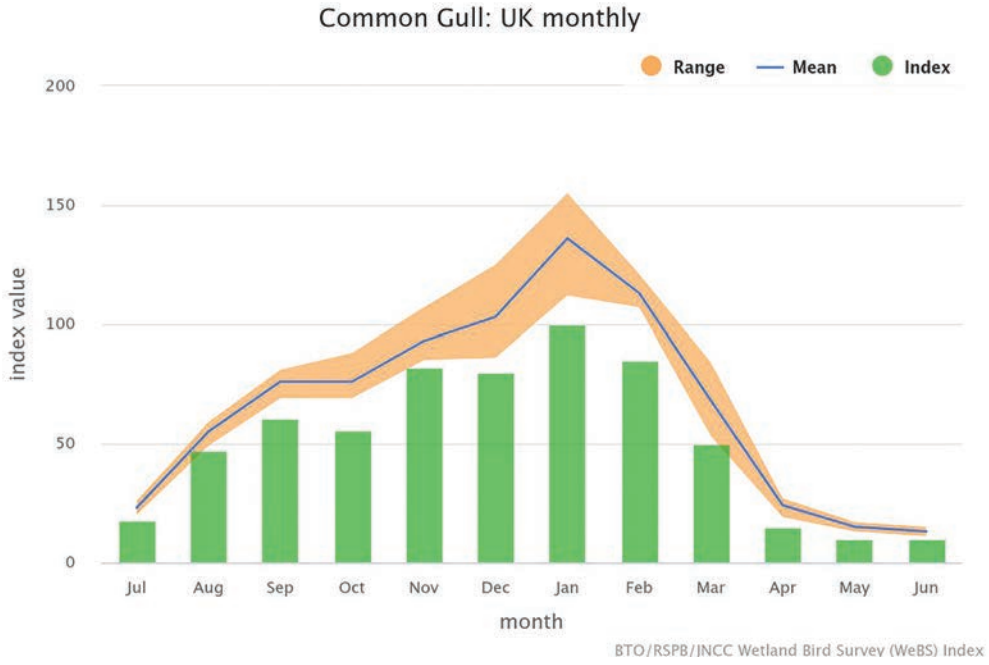


Figure A5.3. United Kingdom Wetland Bird Survey (WeBS) monthly indices for Mediterranean Gull.

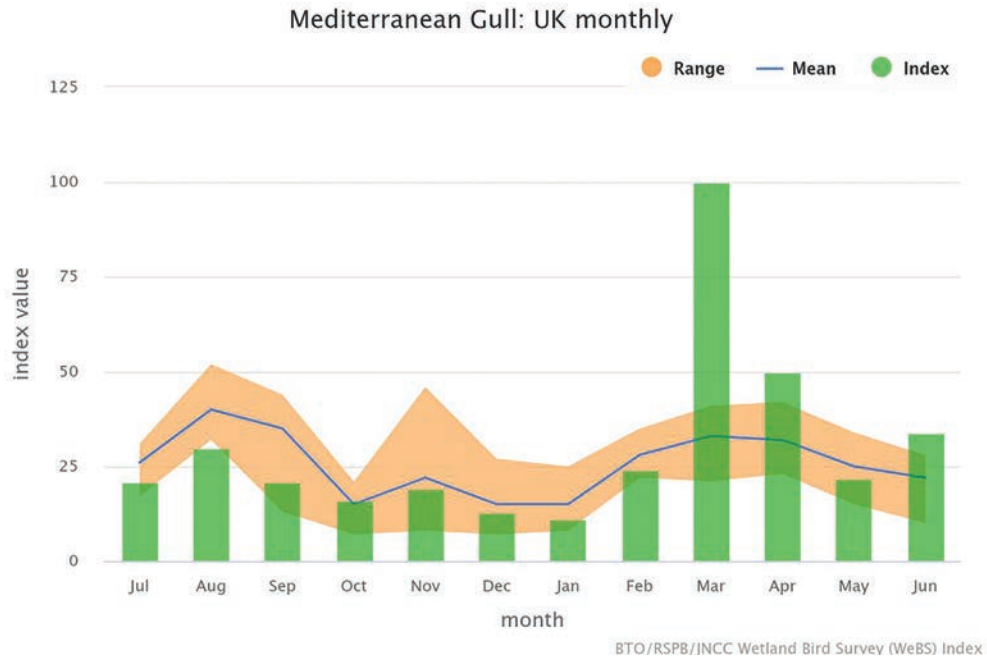


Figure A5.4. United Kingdom Wetland Bird Survey (WeBS) monthly indices for Lesser Black-backed Gull.

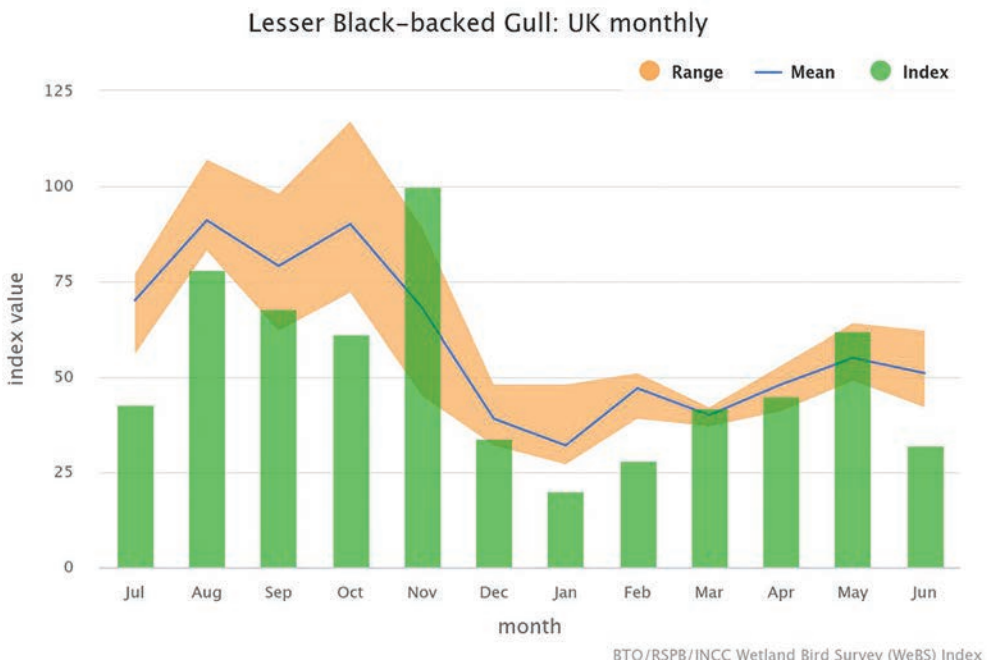


Figure A5.5. United Kingdom Wetland Bird Survey (WeBS) monthly indices for Herring Gull.

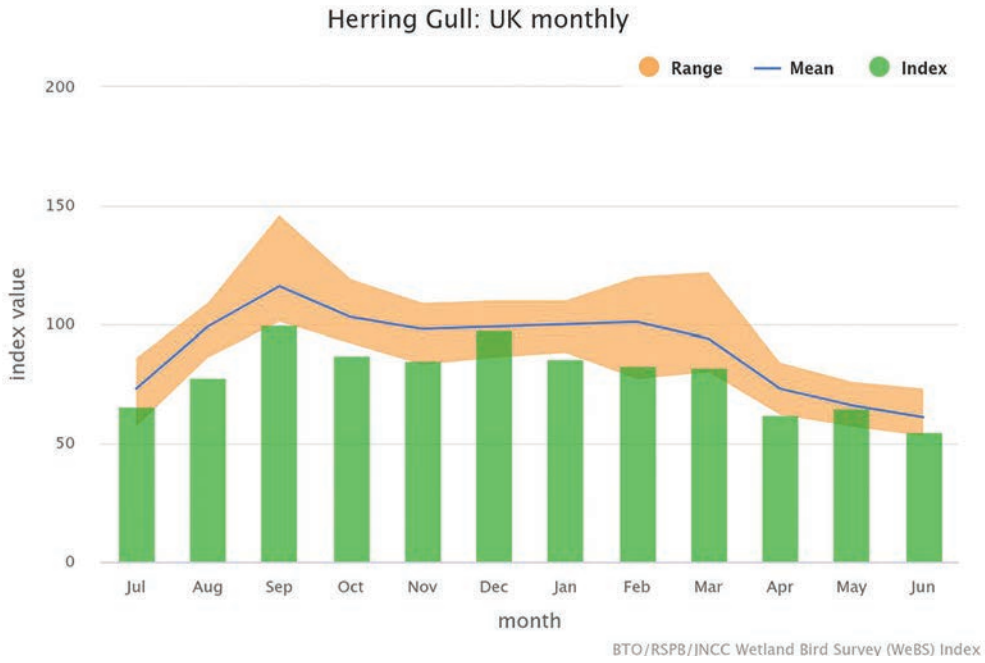
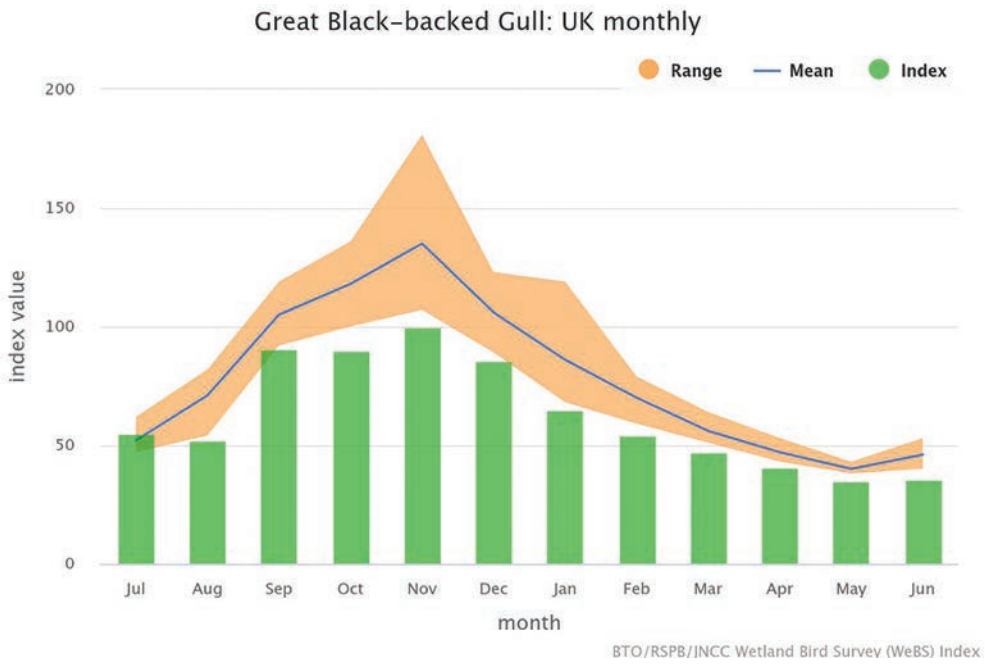


Figure A5.6. United Kingdom Wetland Bird Survey (WeBS) monthly indices for Great Black-backed Gull.



Appendix 6. BirdTrack reporting rate graphs for gulls.

The graphs below show how the BirdTrack 'reporting rate' varies throughout the year across Great Britain and Ireland for each of the six main gull species featured in this report, i.e. the proportion of complete lists which recorded each species at different times of the year. The graphs do not show abundance and therefore the variation does not measure population change. However, the graphs help indicate how the occurrence of a species varies by showing how likely it is that an observer will encounter one of more individuals of the species at different times of year. Graphs for the four countries of the UK and for the crown dependencies of the Channel Islands and the Isle of Man can be viewed on the BirdTrack website (**www.birdtrack.net**).

BirdTrack is organised by BTO for BTO, RSPB, BirdWatch Ireland and the Welsh Ornithological Society.

Figure A6.1. BirdTrack reporting rate graph for Black-headed Gull.

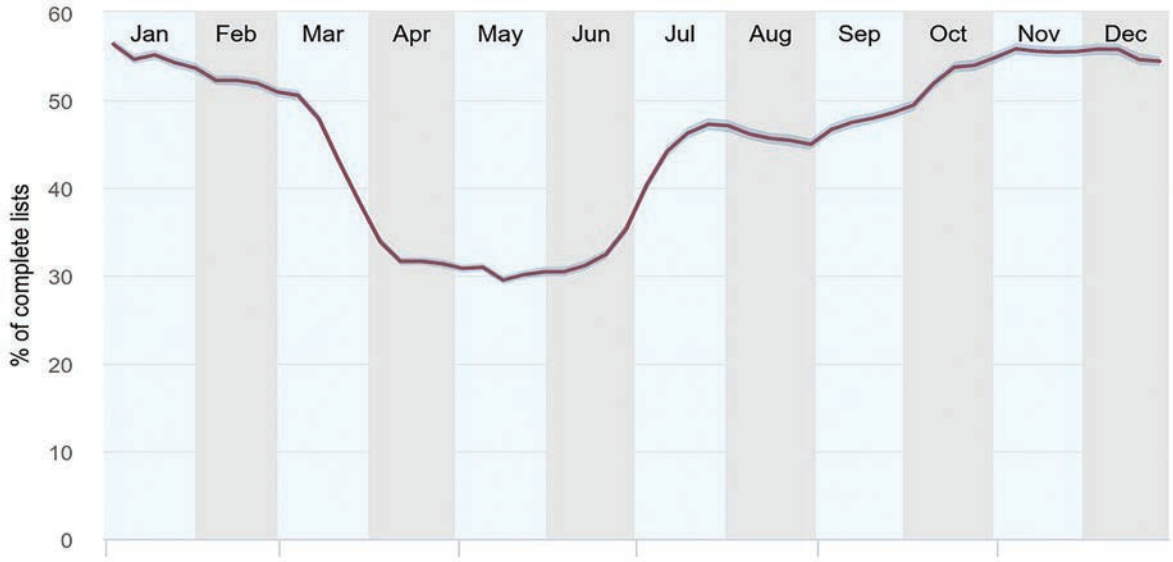


Figure A6.2. BirdTrack reporting rate graph for Common Gull.

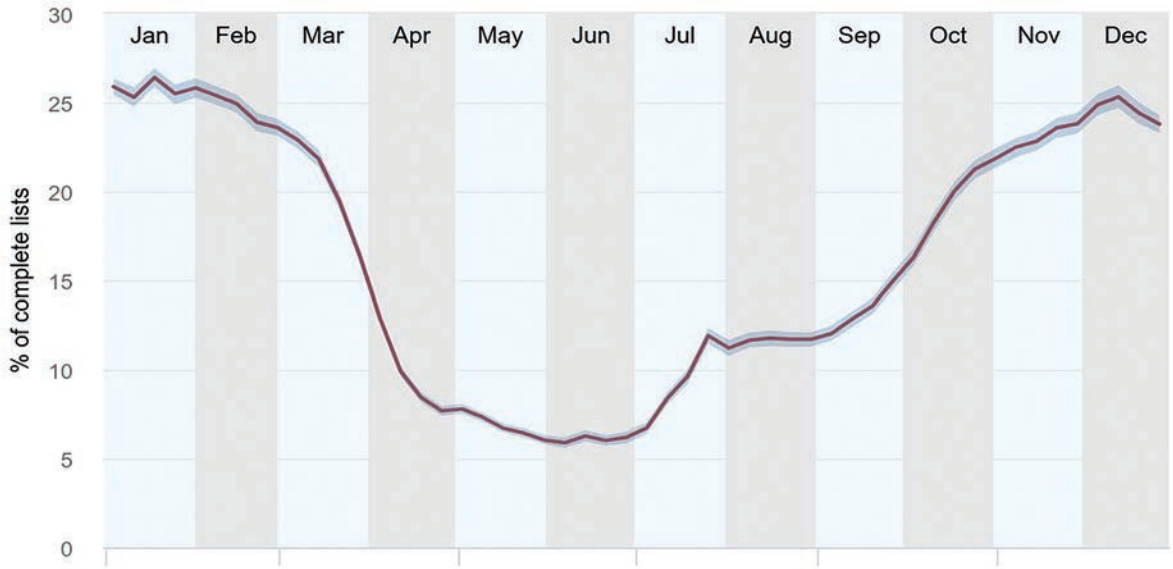


Figure A6.3. BirdTrack reporting rate graph for Mediterranean Gull.

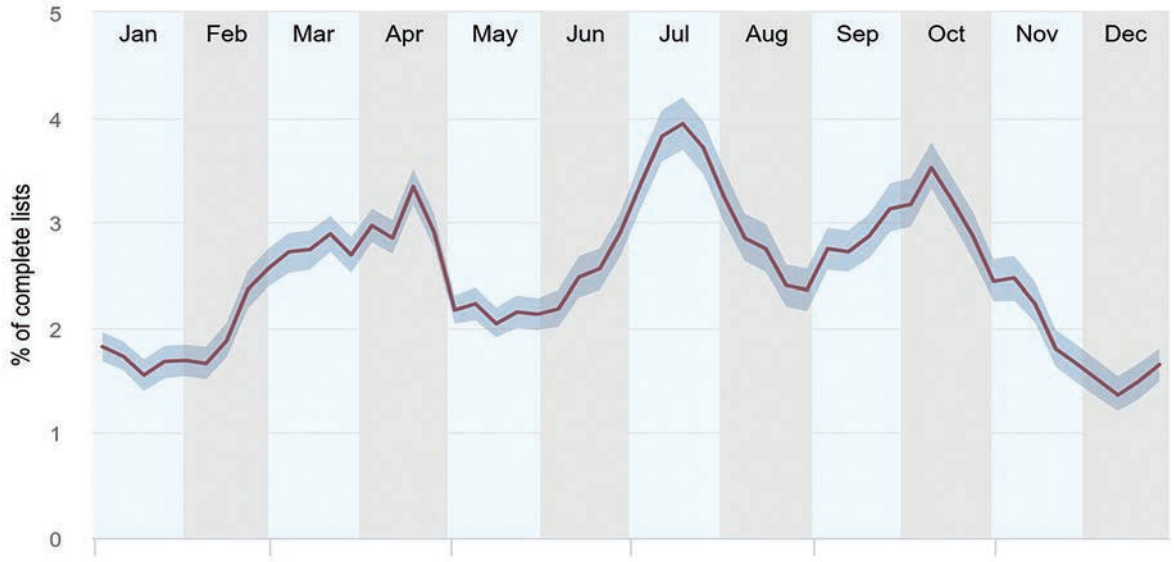


Figure A6.4. BirdTrack reporting rate graph for Lesser Black-backed Gull.

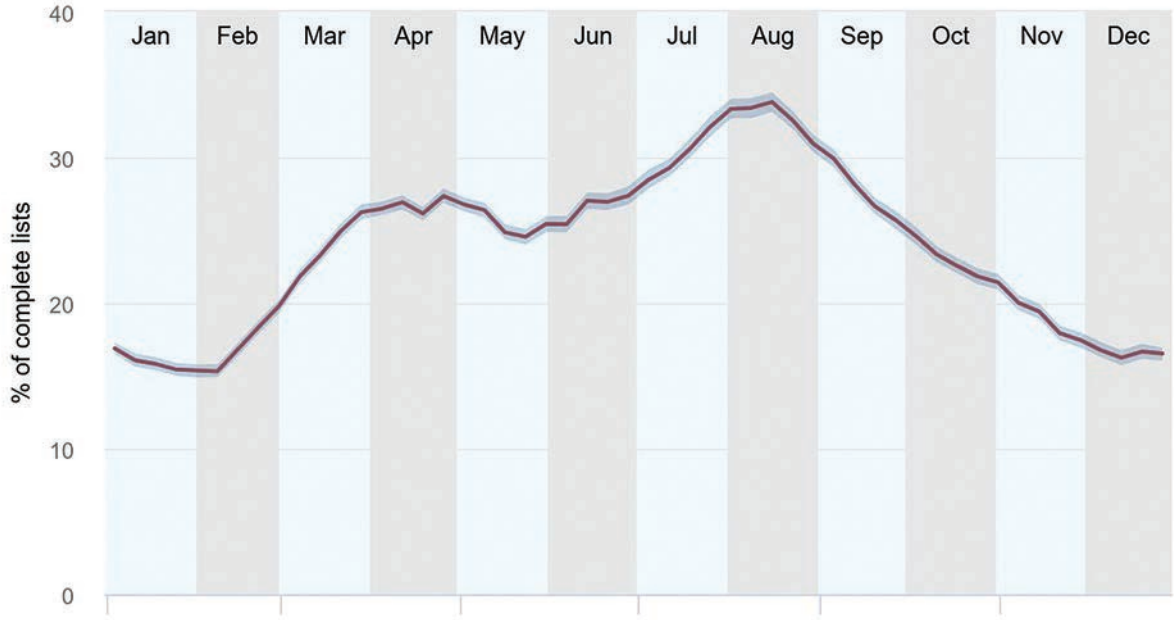


Figure A6.5. BirdTrack reporting rate graph for Herring Gull.

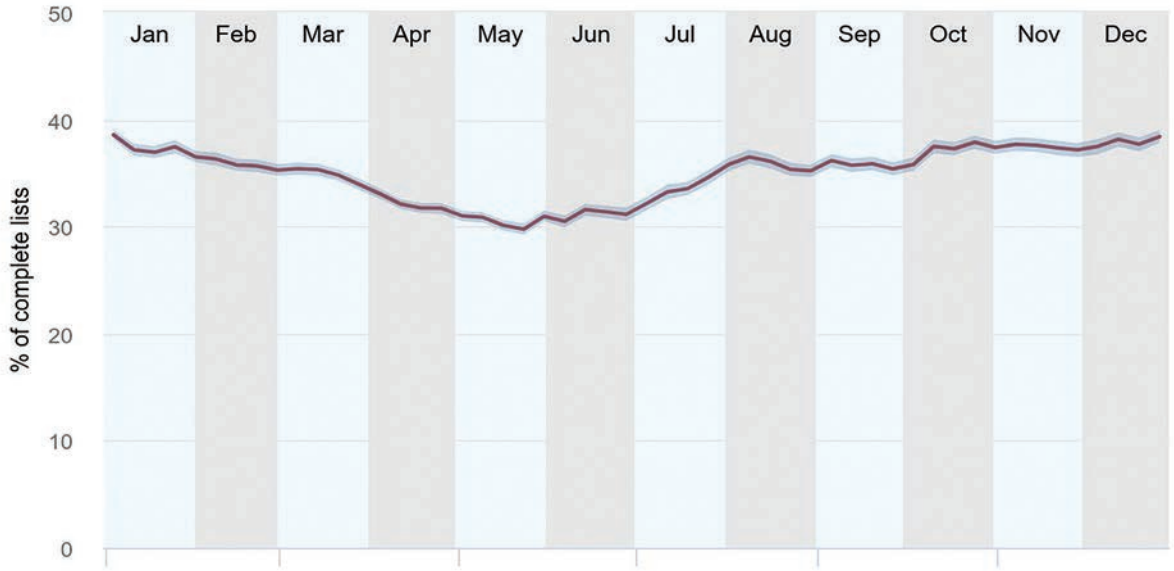
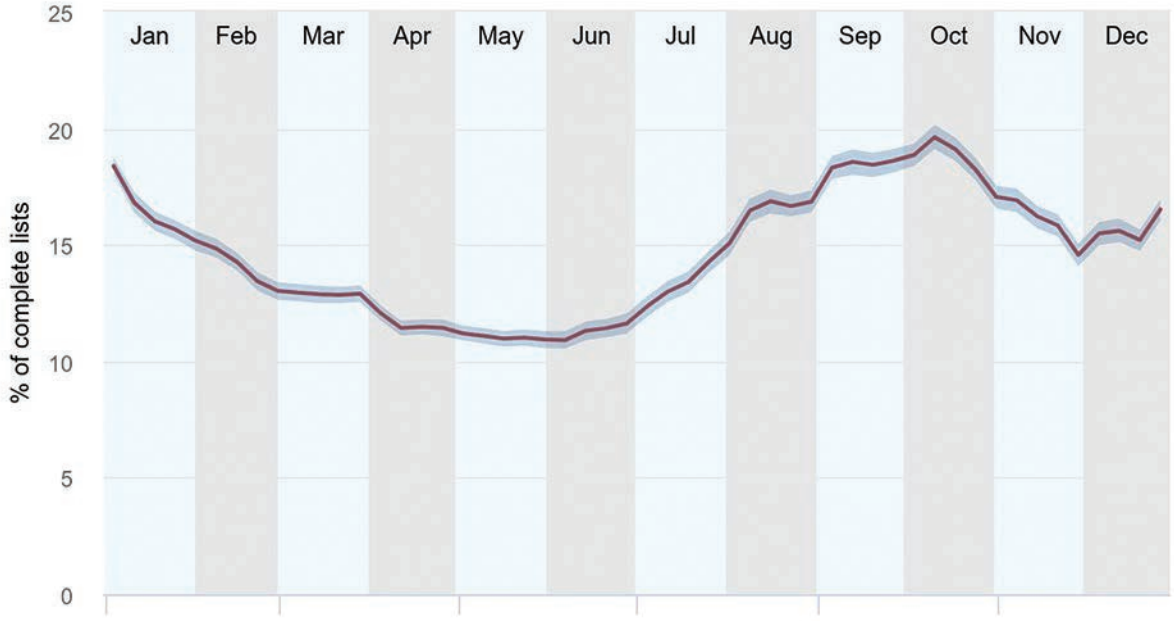


Figure A6.6. BirdTrack reporting rate graph for Great Black-backed Gull.



Appendix 7. Wetland Bird Survey (WeBS) annual trends for gulls.

The graphs below show the BTO/JNCC/RSPB Wetland Bird Survey (WeBS) trend graphs for the six main gull species considered in this report. The graphs are as presented in the 2024/25 WeBS Report Online (Frost *et al.* 2026) and use wintering data from WeBS sites, i.e. mostly large estuaries and larger waterbodies, covering the period September to March inclusive. Note that counts of gulls are optional in WeBS and therefore not all WeBS sites are counted. Additional graphs showing trends for the four UK countries and for Great Britain can be viewed on the WeBS Report Online (**https://app.bto.org/webs-reporting/numbers.jsp**).

Figure A7.1. Wetland Bird Survey (WeBS) UK annual trend graph for Black-headed Gull.

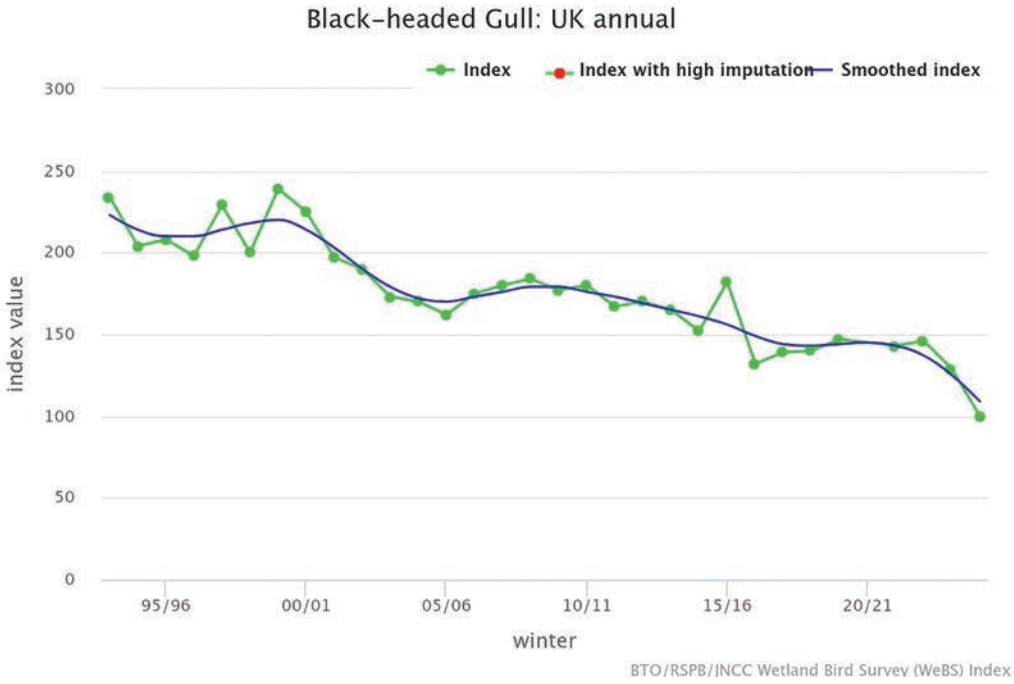


Figure A7.2. Wetland Bird Survey (WeBS) UK annual trend graph for Common Gull.

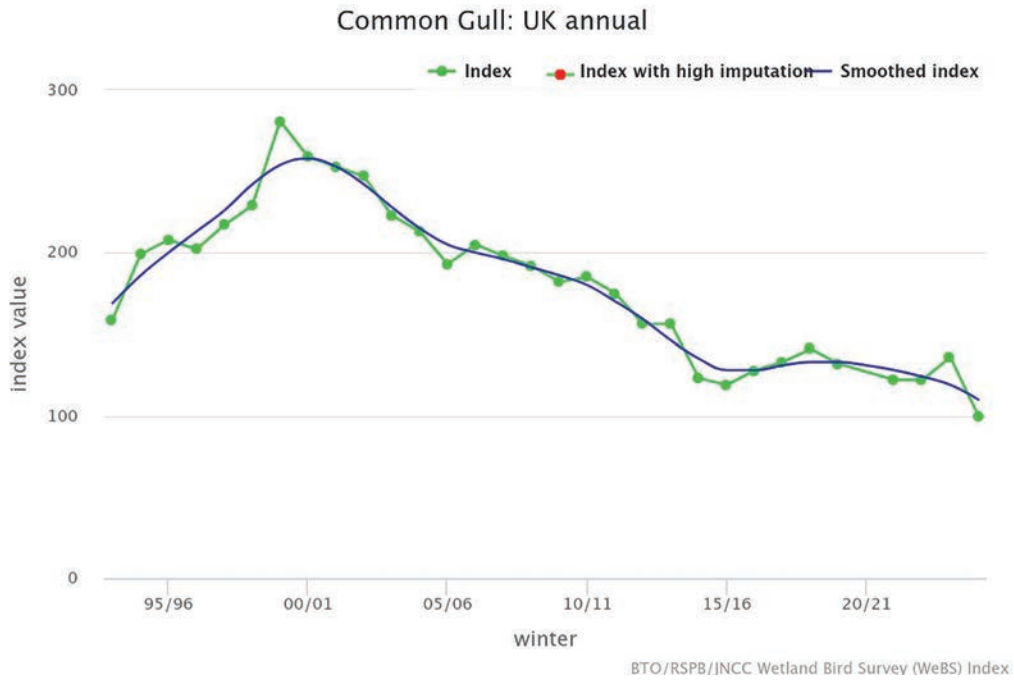


Figure A7.3. Wetland Bird Survey (WeBS) UK annual trend graph for Mediterranean Gull.

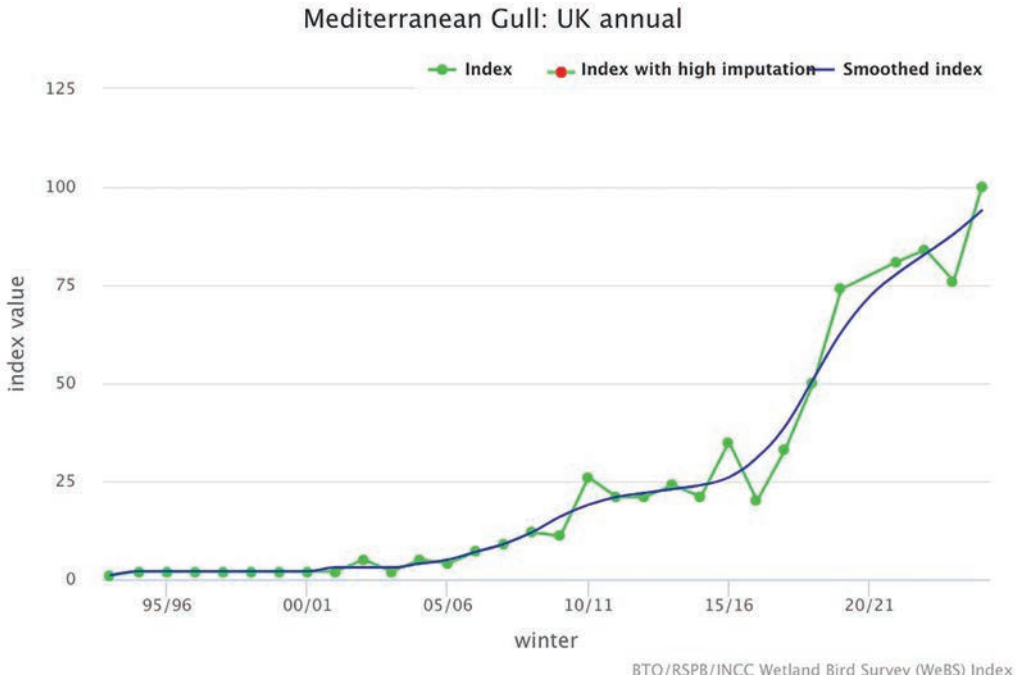


Figure A7.4. Wetland Bird Survey (WeBS) UK annual trend graph for Lesser Black-backed Gull.

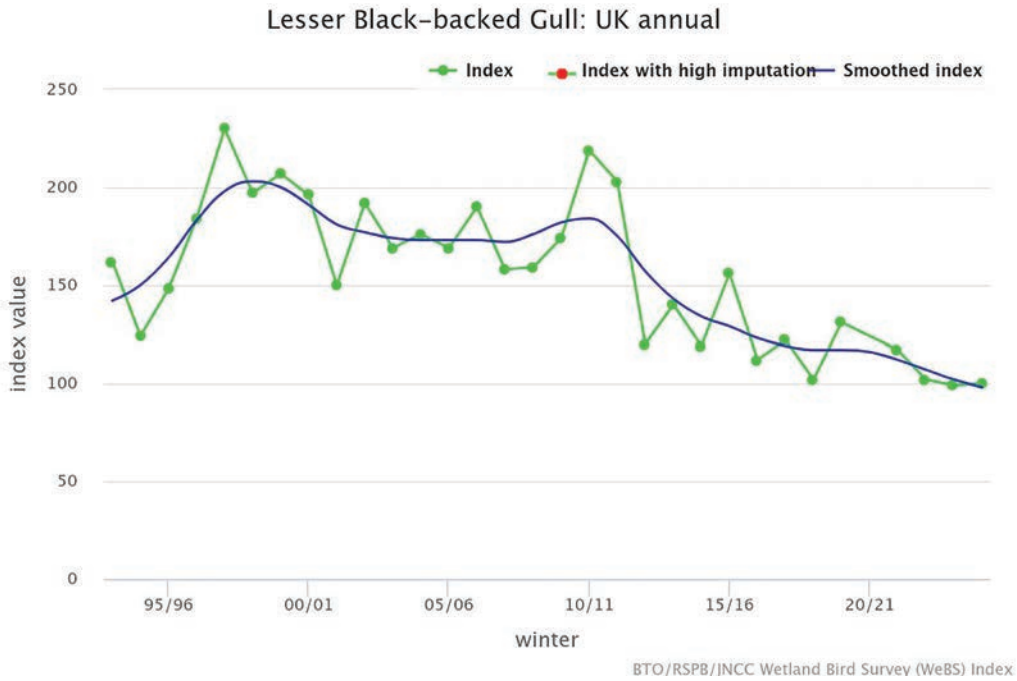


Figure A7.5. Wetland Bird Survey (WeBS) UK annual trend graph for Herring Gull.

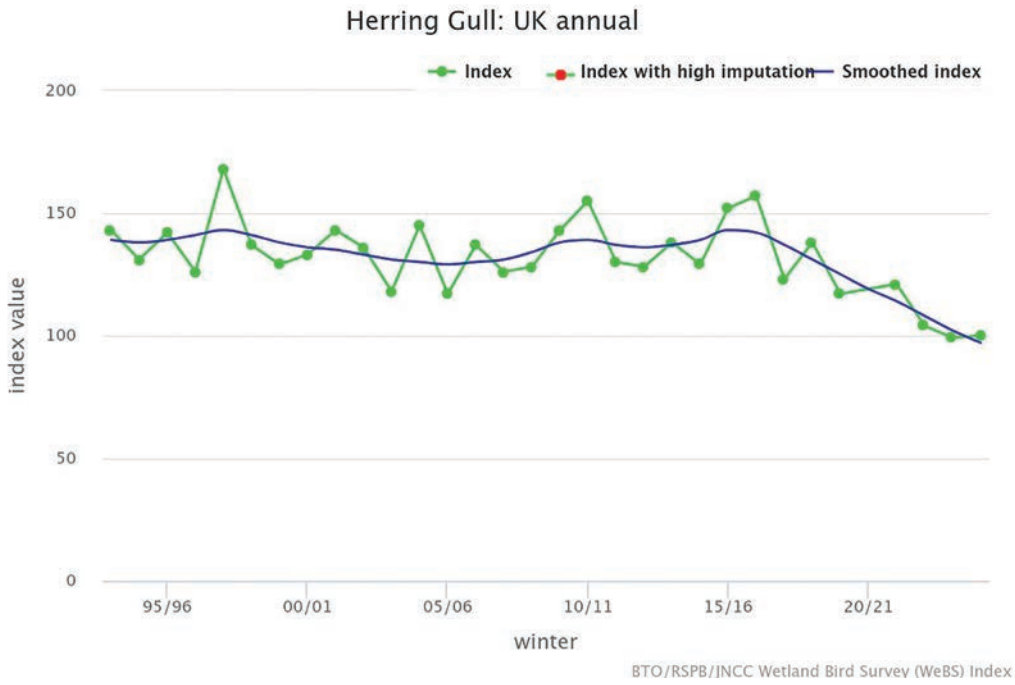
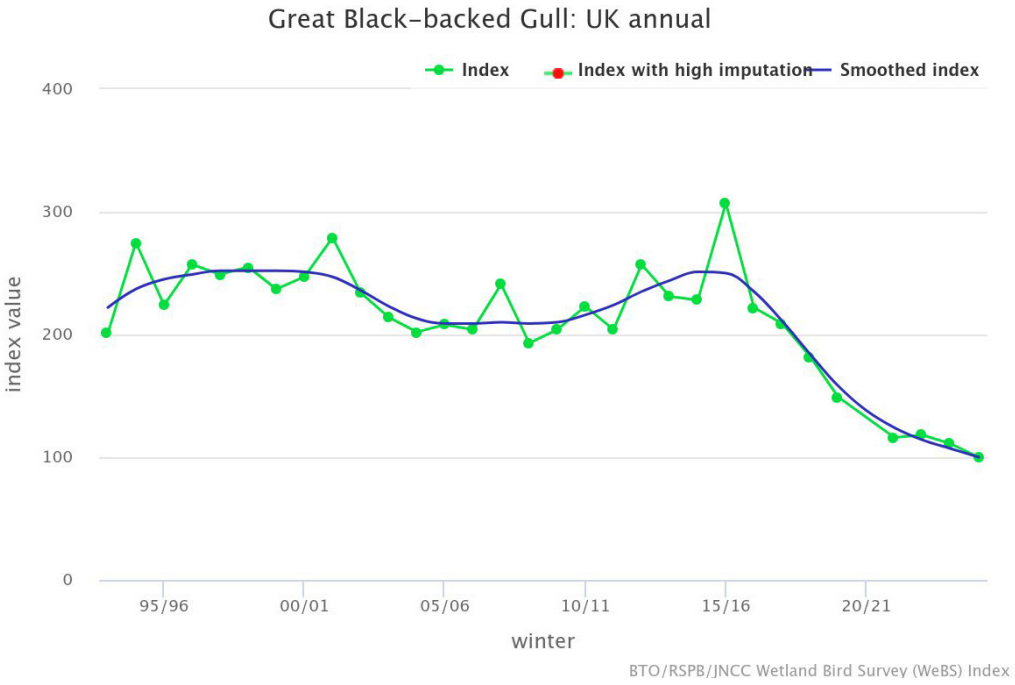


Figure A7.6. Wetland Bird Survey (WeBS) UK annual trend graph for Great Black-backed Gull.



Appendix 8. Non-breeding gull feature options listed in the Phase 2 Report of the Third UK SPA Review.
The tables below show the sites and species combinations listed in the Phase 2 Report of the Third UK SPA Review (Grady *et al.* 2025) as further options to be considered for (a) additional features to existing SPAs; or (b) feature options at three new SPAs. Species/site combinations for which WinGS counts exceeded the updated national 1% species thresholds and are hence listed in Table 12 in the main report are indicated.

Table A8a. Options to be considered for additional features to existing SPAs.

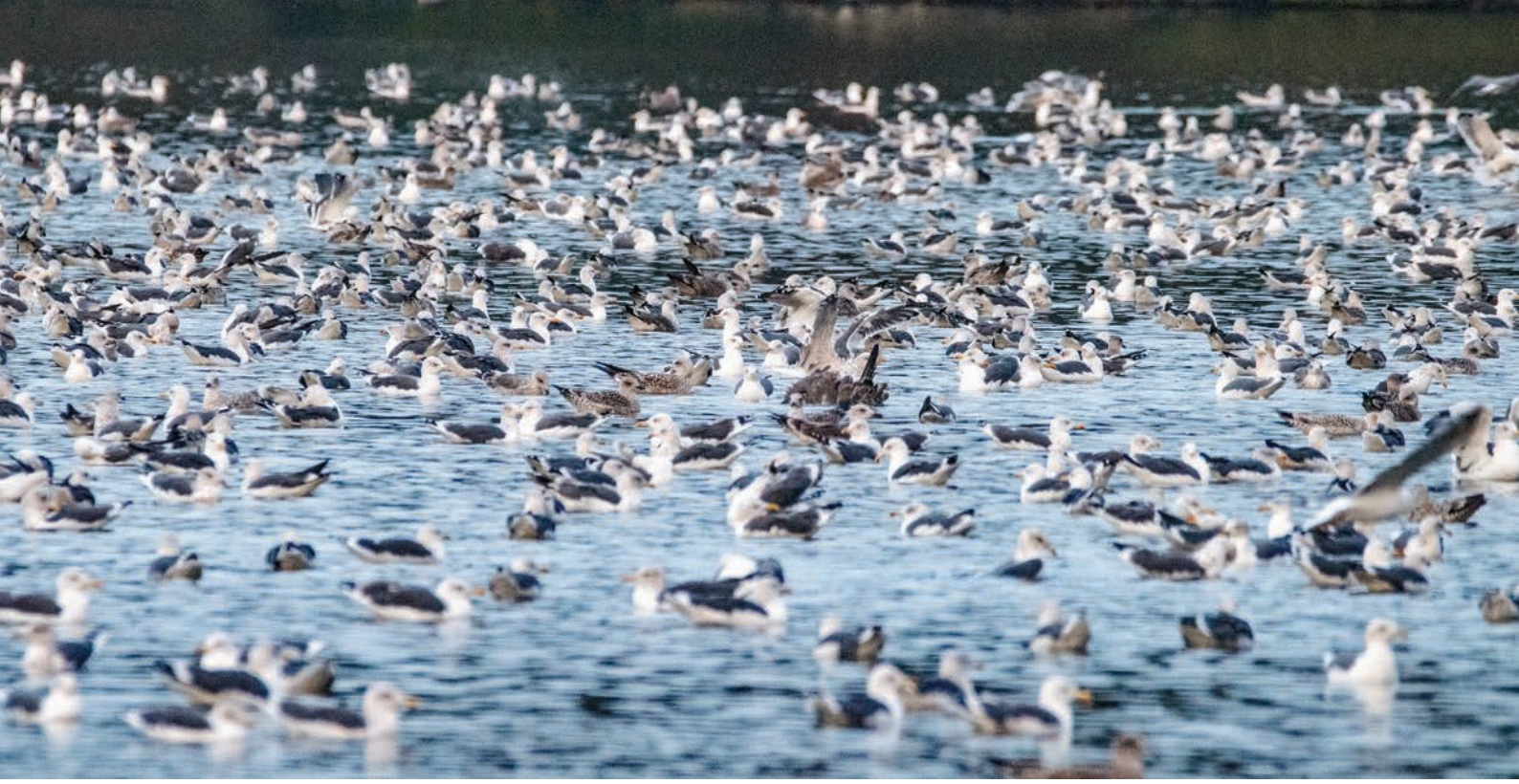
Species	Site	Listed in Table 12
Black-headed Gull	Chew Valley Lake	
	Firth of Forth	
	Humber Estuary	
	Ribble and Alt Estuaries	
	Severn Estuary	
	Thames Estuary and Marshes	
	The Wash	Y
Common Gull	Chew Valley Lake	
	Firth of Forth*	Y
	Humber Estuary	
	The Wash	Y
Mediterranean Gull	Breydon Water	
	Chesil Beach and The Fleet	(Y)**
	Pagham Harbour	
	Solent and Southampton Water	
	Tamar Estuaries Complex	
	Thames Estuary and Marshes	
Lesser Black-backed Gull	Chew Valley Lake	Y
	Morecambe Bay and Duddon Estuary	
	Ribble and Alt Estuaries	
	Thames Estuary and Marshes	
	Severn Estuary	Y
	The Wash	
Herring Gull	Firth of Forth	Y
	Morecambe Bay and Duddon Estuary	
	Ribble and Alt Estuaries	
	Severn Estuary	
	The Wash	
Great Black-backed Gull	Humber Estuary	
	Thames Estuary and Marshes	
	The Wash	

*As a main component of the assemblage under SPA Selection Guideline 1.3.

**The WinGS counts identified two roosts exceeding the 1% national threshold adjacent to, rather than within the SPA boundary.

Table A8b. Features options for gulls from the Phase 2 Report of the Third UK SPA Review to be considered at sites which are not existing SPAs.

Species	Site	Listed in Table 12?
Black-headed Gull	Bewl Water	Y
	Chingford Reservoirs SSSI	Y
	Derwent Reservoir	
Common Gull	Bewl Water	Y
	Chingford Reservoirs SSSI	
	Derwent Reservoir	



Front cover: Black-headed Gull, by Neil Calbrade / BTO; back cover: Gull roost, by Ian Sheppard

Winter gulls in the United Kingdom: results from the 2023/24–2024/25 Winter Gull (Roost) Survey

The Winter Gull (Roost) Survey (WinGS) provides the most comprehensive assessment of wintering gull populations across the United Kingdom, also covering the Channel Islands and the Isle of Man. Last conducted two decades ago, the survey addresses a substantial evidence gap in our understanding of wintering gull populations. By combining near-census coverage of major roosts with stratified sampling of inland and Coastal Sites, it delivers robust population estimates at both UK and country scales. This report presents updated estimates for six gull species and evaluates changes over the past two decades, providing critical evidence to inform conservation policy, site designation, and the management of pressures affecting gull populations.

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