

Llŷr Marine Ornithological Clarification Note 2
HiDef Method to Apportion Unidentified Birds - ‘Non-ID Apportioning’

As requested by NRW (A) and JNCC, HiDef provide this clarification of the approach we take to apportion those bird records it has not been possible to identify to the species level, a practice we term ‘non-ID apportioning’. This supporting detail is given with reference to paragraph 29 of **Appendix 22A Marine Ornithology Baseline - Section 22.2.2 Data Analysis**, where NRW (A) and JNCC have requested further explanation of the methodology (responses as appended in Annex A).

We first set out the taxonomic groupings we use for non-ID apportioning (Section 1) and then how the method works in practice (Section 2).

1. Taxonomic groupings used by HiDef

Table 1 presents the taxonomic groupings used by HiDef for records where it has not been possible to ID the bird to species level. Where possible, identification is undertaken to the species level, but where the record is less certain it is assigned to the taxonomic grouping that is the ‘best fit’. These groupings encompass three levels of certainty as shown in **Table 1**, from grouping level 1 where there’s reasonable certainty on the type of bird through to level 3, the broadest category.

Table 1: Taxonomic groupings used for birds with no species identification

Species	Grouping Level 1	Grouping Level 2	Grouping Level 3
Kittiwake	Small gull species (SGS)	Auk / small gull species (ASG)	Gull species
Great black-backed gull	Black-backed gull species	Large gull species (LGS)	
Lesser black-backed gull			
Herring gull	N/A		
Fulmar	Fulmar or gull species	N/A	N/A
Gannet	Gannet species	N/A	N/A
Puffin	N/A	Auk species (AUK)	Auk / shearwater species Auk / small gull species
Guillemot	Large auk (LGA)		
Razorbill			
Manx shearwater	Shearwater species	Auk / shearwater species (AUS)	N/A
Balearic shearwater		N/A	N/A
European storm petrel	Storm petrel species	N/A	N/A

In **Table 1**, the non-ID species codes are noted in **bold**, as referenced in the worked examples given in the next section, **Table 2**.

2. HiDef Method for Non-ID Apportioning

All unidentified birds, as compiled from the taxonomic groupings in **Table 1**, are assigned to species-level using a weighting that correlates to the overall proportions of birds recorded for each species per survey month. Depending on the numbers encountered this weighting will vary month-to-month.

Table 2 provides three worked examples in relation to the Llŷr survey records presented in **Appendix 22A Marine Ornithology Baseline**. The original counts are to be found in **Table A1, Annex A of Appendix 22A**, with the unidentified bird records presented in **Table A3**.

Table 2: Non-ID apportioning – worked examples for Llŷr

Species	Original count	No ID species group	Unidentified count	Apportioning proportion	Count added	Total apportioned count
June 2020 (S01-20)						
Puffin	12	AUK	1	1	1	13.2069
		AUS	9	0.022989	0.2069	
Manx shearwater	1069	AUS	9	0.977010	8.7931	1077.7931
Guillemot	100	LGA (sitting)	2	1	2	102
September 2020						
Puffin	9	AUK	18	1	18	27
Manx shearwater	9	AUS	13	0.5	6.5	15.5000
Razorbill	59	AUS	13	0.5	6.5	66.6940
		LGA (sitting)	43	0.027768	1.1940	
Guillemot	1961	LGA (sitting)	43	0.972230	41.8059	2003.8059
		LGA (flying)	1	1	1	
January 2021 (S02-21)						
Guillemot	1831	ASG	3	0.25	0.75	1866.4556
		LGA	37	0.937990	34.7056	
Kittiwake	254	ASG	3	0.75	2.25	257.2403
		SGS	1	0.990290	0.9903	
Razorbill	115	AUK	5	1	5	122.2943
		LGA	37	0.062007	2.2943	

As NRW (A) and JNCC should be aware, non-ID apportioning cannot be a completely accurate process, on occasion a small number of unidentified birds will be incorrectly allocated. As HiDef's apportioning calculations are survey-specific, they are based on the presence of birds identified to species-level during that specific survey. For example, if there were to be zero confirmed puffin IDs recorded during a survey, then any puffin that might be amongst the unidentified birds would not be addressed in the non-ID apportioning. However, this risk is considered to be slight and would only ever involve a very small number of birds, with negligible impact to estimates of abundance and their associated levels of uncertainty.

Overall, the method is considered robust, and it allows for the inclusion of non-ID birds in the project impact assessments, as recommended by the statutory nature conservation bodies.

Annex A

NRW (A) and JNCC requests for clarification of HiDef's non-ID apportioning method

Llŷr Appendix 22A Marine Ornithology Baseline - Section 22.2.2 Data Analysis, Paragraph 29: Apportioning of 'unidentified' birds to species level was undertaken on all data for the purposes of calculating density and population estimates. The number of unidentified birds in each species group were assigned to species where appropriate, based on their respective abundance ratios. For example, if identified guillemots and razorbills occurred in a 4:1 ratio, then 80% of unidentified birds would be assigned to guillemot and 20% assigned to razorbill. Apportioning of unidentified birds was undertaken prior to calculation of design-based and model-based estimates.

NRW (A) advice on Llŷr – 29 January 2025

NRW (A) welcomes that records of birds 'unidentified' to species level (i.e. those only identified to species group level) have been apportioned to species based on their respective abundance ratios. However, clarity is required on how unidentified species that crossed multiple species/groups, or are more ambiguous, were apportioned. For example, if guillemots and razorbills occurred in a 4:1 ratio, then 80% of unidentified birds would be assigned to guillemot and 20% assigned to razorbill. As such, we consider further detail is required regarding which unidentified species groupings were included (for example, for razorbills and guillemots the groupings 'auk/shearwater species', 'auk/small gull species', 'auk species', and presumably 'large auk species' could all potentially include guillemots and razorbill (although further clarity as to which auk species are considered large is not provided). Therefore, the Applicant should clarify whether all these groupings were considered and apportioned to razorbill and to common guillemot to ensure the calculations presented in the assessments are correct. In addition, clarity should be provided on how species were apportioned should species level data not be available for a survey.

JNCC advice on Llŷr – 22 January 2025

The paragraph states that apportioning of unidentified birds to species level has been undertaken based on ratio of abundances. An example is provided for guillemots and razorbills whereby if they occurred in a 4:1 ratio, then 80% of unidentified birds would be assigned to guillemot and 20% assigned to razorbill. Further detail is required regarding which unidentified species groupings were included. For example, for razorbills and guillemots the groupings 'auk/shearwater species', 'auk/small gull species', 'auk species', and presumably 'large auk species' could all potentially include guillemots and razorbill (although clarity as to which auk species are considered large is not provided, but as the two largest species of auk which occur in the UK we assume that this would include razorbill and common guillemot). Are all of these groupings considered and apportioned to razorbill and to common guillemot?