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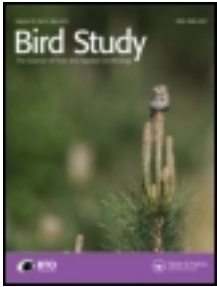
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Hybridization of Herring and Lesser Black-backed Gulls in Britain

by M. P. Harris, C. Morley and G. H. Green

This paper provides the first descriptions of undoubted hybrids of these gulls to be found in Britain. These cases are associated with colonies where there has been experimental 'cross-fostering' of eggs, and the rarity of hybrids in relation to the scale of these experiments suggests that such birds are at considerable selective disadvantage.

THE HERRING GULL *Larus argentatus* and the Lesser Black-backed Gull *L. fuscus* are sympatric over much of their range in western Europe (Voous 1960). Although interbreeding and the occurrence of possible hybrids are widely quoted in the zoological literature, there are very few acceptable records (reviewed by Harris 1970) and no published description of an undoubted hybrid. Some authors (eg Stegmann 1934) have used these few instances as evidence for considering the two gulls to be conspecific. This note documents recent records of mixed pairs (ie a Herring Gull mated with a Lesser Black-backed Gull, or either with a hybrid), and describes three definite and 10–12 possible hybrids found in Britain.

The term 'cross-fostering' is used to describe the hatching and rearing of a young gull by adults of another species, ie a Herring Gull reared (usually experimentally) by Lesser Black-backed Gulls or *vice versa*. Harris (1970) found that many of these cross-fostered birds, which were presumed to have been imprinted on their foster-parents, returned to the colonies and formed mixed pairs which resulted in hybridization. We use 'mid-grey' to describe a colour darker than the pale grey of the mantle of a Herring Gull, but lighter than the dark grey of the mantle of the British race (*graellsii*) of the Lesser Black-backed Gull.

All British records known to the authors of certain or probable hybrids and of mixed pairings are given in Tables I and II respectively. These include 'natural' instances as well as those resulting from experimental cross-fostering of young.

For two of the birds listed below, photographs are given also (Plates 2–3), to show comparisons with adult Lesser Black-backed and Herring Gulls.

DESCRIPTIONS OF HYBRIDS

Definite hybrids

Three first-generation (F_1) hybrids are known to have resulted from cross-fostering experiments by Harris (1970).

1. An adult at a colony on Skokholm (Dyfed) from 1972 to 1977 had been colour-ringed as a hybrid chick in 1968. When observed from the side in good light, the mantle and leg colours were intermediate between those of adjacent Herring and Lesser Black-backed Gulls. The eye ring was also of intermediate colour between the orange-red of a Lesser Black-back and the yellow of a Herring Gull.
2. A different adult seen at St Ann's Head, 6 km from Skokholm, in July 1972 had also been colour-ringed as a hybrid chick. Its mantle and leg colours were again intermediate, but the eye ring was not seen closely.

TABLE I. BRITISH RECORDS OF HYBRIDS OR PRESUMED HYBRIDS BETWEEN HERRING AND LESSER BLACK-BACKED GULLS

<i>Place</i>	<i>Date(s)</i>	<i>Remarks</i>	<i>Source</i>
Walney Island (Cumbria)	1969	one probable (mated ♀) seen	M. H. MacRoberts (in Harris 1970)
	1973-75	at least 7 breeding	Porter (1976)
	1977	♂ collected	this study
Morecambe Bay (Cumbria)	1960	one seen	Spencer (1961)
Skokholm (Dyfed)	1972-73	two birds seen	this study
	1977	two breeding; one other probably not	J. W. F. Davis (pers. comm.)
St Ann's Head (Dyfed)	1972	one bird seen	this study
Tenby (Dyfed)	1977	one killed	this study
Steeptom (Somerset)	1977	breeding ♀ collected	this study
Isle of May (Fife)	1972	one killed	this study

3. A bird accidentally killed at Tenby (Dyfed), 38 km from Skokholm, on 6 August 1977, was identified as a possible hybrid by G. P. Mudge. This bird had been ringed as a chick on Skokholm in 1967 in a small colony where cross-fostering experiments had been carried out in 1963. In 1968 there were 13 mixed pairs in this sub-colony; a check there for mixed pairs had not been made in 1967, though young that had been cross-fostered in 1963 would have been breeding at this time. This skin has been deposited in the British Museum (Natural History), Tring, and its measurements are given in Table III. See also Plate 3.

The mantle colour of this last bird was also exactly intermediate between that of Herring and Lesser Black-backed Gulls. The legs were flesh-coloured, tinged with yellow. The eye-ring was pale reddish yellow, but not so richly coloured as that of the true Lesser Black-back; while the gape was pale, but not as pale as that of the Herring Gull. The primary moult had not started, whereas all 101 adult Herring Gulls caught at Tenby that day had between one and five new primaries on each wing. Of three Lesser Black-backed Gulls caught at the same time, two had not started moult and one had the two inner primaries on each wing just beginning to grow.

Possible hybrids

The following cases can be added to those published previously (Table I).

1. A breeding female paired with a Herring Gull was collected on Steptom (Somerset) in May 1977. This bird had a mid-grey mantle, pale yellow legs and a reddish-yellow eye-ring. The skin is deposited in the British Museum (Natural History), Tring, and its measurements are given in Table III. See also Plate 2.
2. An unringed bird present in a colony on Skokholm in 1972 was in all ways intermediate between Herring and Lesser Black-backed Gulls.

3. A ringed bird feeding young on Skokholm in 1977 was also intermediate in mantle and leg colour (Dr J. W. F. Davis, pers. comm.). This could have been the bird collected at Tenby in August, already referred to.
4. An adult male with fully developed gonads was collected on Walney Island (Cumbria) in June 1977. Its mantle colour was mid-grey, legs and feet pale yellow, and the eye-ring was orange-yellow; see Table III for its measurements.
- 5-11. Porter (1976) compared the mantle colour of 18 gulls found in mixed pairs on Walney Island between 1973-1975 with a series of apparently pure Lesser Black-backed and Herring Gulls using a photographic standard. Seven of these were classed as having intermediate mantle colour by three independent observers. He concluded that these birds were hybrids, or the offspring of hybrids. Possibly they included the one collected in 1977 (no. 4, above).
12. A bird killed on the Isle of May (Fife) in 1972 was exactly intermediate in mantle and eye ring colour between Herring and Lesser Black-backed Gulls.

TABLE II. RECORDS OF INTERBREEDING BETWEEN HERRING AND LESSER BLACK-BACKED GULLS, OR BETWEEN ONE OF THESE SPECIES AND A HYBRID (*)

Colony	Year	Remarks	Source
Walney Island (Cumbria)	1969	1*	M. H. MacRoberts (in Harris 1970)
	1972	1*	Porter (1976)
	1973	2*	
	1974	2+4*	
	1975	9+7*	
	1977	1 probable	
Skokholm (Dyfed)	1968	1	Harris (1970)
	1969	31	Harris (1970)
	1970-73	40	Harris (1970)
	1974-76	many	M. L. Brooke (pers. comm.)
	1977	1*	J. W. F. Davis (pers. comm.)
Skomer (Dyfed)	1959	1	Myrne (1960)
	1968	1 probable	Harris (1970)
Stepholm (Somerset)	1977	1*	this study
Foula (Shetland)	1963	1	P. J. Reay (in Jackson 1966)

DISCUSSION

All three definite hybrids were morphologically intermediate between Herring and Lesser Black-backed Gulls. The two observed in the field (on Skokholm) were easily separable when on the ground, but not in flight. Porter (1976) also noted this for his presumed hybrids. We suggest that any Herring/Lesser Black-backed Gull with a mid-grey mantle, pale yellow legs and an orange-yellow eye-ring in the breeding season can be assumed to be a hybrid. It is possible, though far from proved, that at this time all first-generation (F_1) hybrids are separable in the field when adult. However, during the winter a bird like this might be a Herring Gull from one of the rather darker-backed populations found in northern and north-eastern Europe. Offspring from hybrid \times non-hybrid parents will probably prove difficult, if not impossible, to separate from the *fuscus* and *argentatus* phenotypes.

TABLE III. MEASUREMENTS OF ONE DEFINITE AND TWO PRESUMED HYBRID HERRING/LESSER BLACK-BACKED GULLS FROM DYFED, CUMBRIA AND SOMERSET, COMPARED TO THOSE OF RECENTLY DEAD ADULT WELSH HERRING AND LESSER BLACK-BACKED GULLS. ALL BIRDS SEXED BY DISSECTION

Sex	Hybrids		Herring Gull				Lesser Black-backed Gull							
	δ Dyfed	δ Cumbria	δ No.	δ Mean	δ SD	δ No.	δ Mean	δ SD	δ No.	δ Mean	δ SD			
Wing (mm)	431	439	129	426	9.1	116	406	9.4	26	430	6.6	35	409	9.7
Bill length (mm)	57.7	53.0	148	54.6	3.0	130	50.0	2.5	30	55.6	2.3	50	50.0	2.2
Bill depth (mm)	18.6	18.6	148	19.0	0.6	130	17.1	0.9	30	17.4	0.6	30	15.9	0.9
Tarsus (mm)	63.5	64.3	126	63	3.0	112	58	2.6	26	65	2.9	33	60	3.0
Tail (mm)	155	170	36	172	9.8	29	165	9.6	19	163	4.5	30	154	6.0
Weight (gm)	820*	?	36	977	68	32	813	69	22	880	61	31	755	58

* Six adult male Herring Gulls killed on the same day had a mean weight of 887 gm, range 820-940 gm.

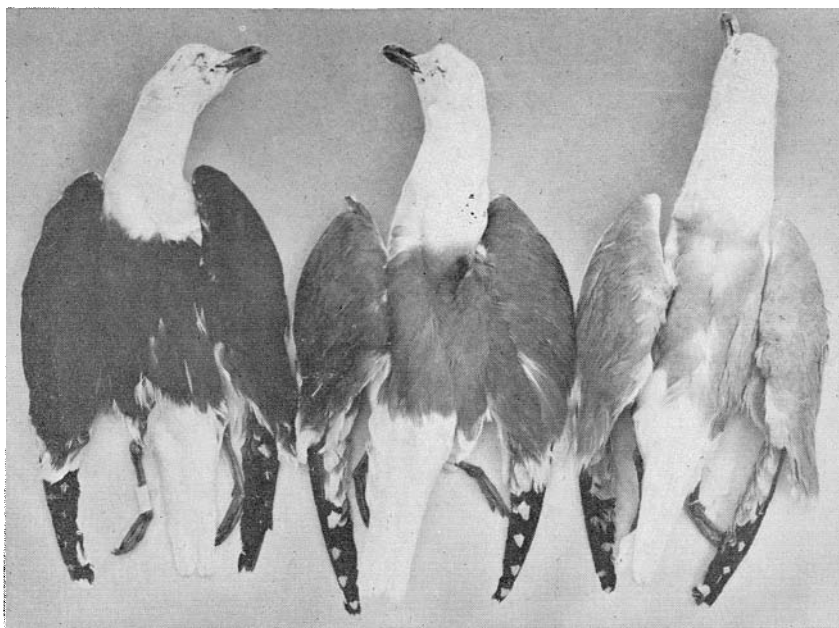


Plate 2. The Steepholm presumed hybrid (centre), compared to British Lesser-backed Gull (left) and Herring Gull (right). Photograph C. Morley.

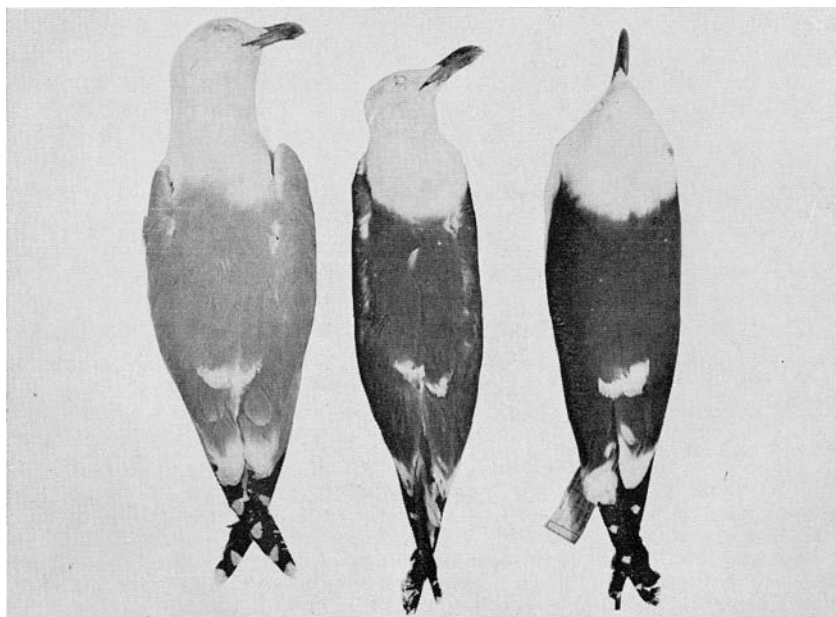


Plate 3. The Tenby hybrid (centre), compared to Herring Gull (left) and Lesser Black-backed Gull (right). Photograph M. P. Harris.

The frequency of natural hybridization is probably extremely low. All the Dyfed mixed pairs, and perhaps all but three of those on Walney Island, almost certainly resulted from cross-fostering experiments (Harris 1970, Porter 1976, Dr G. Thompson, pers. comm.). Harris (1970) found that fewer female than male cross-fostered gulls returned to breed on Skokholm; while Chabrzyk and Coulson (1976) suggested that many female gulls, on maturing, breed away from their natal colonies. Steepholm is only 150 km from Skokholm, and so the female presumed hybrid from there could have been reared on Skokholm or be the offspring of an experimental bird which emigrated.

Unexplained mixed pairs and hybrids could be due to 'natural' cross-fosterings, and thus the wrong imprinting of the chick, as the result of an egg rolling from one nest to another or a small chick being adopted by a different pair. All the recent mixed pairs have been seen at colonies subjected to intensive studies by ornithologists, and the increased disturbance may have led to an above average chance of an egg or chick changing parents.

If, as is suggested, it is possible to identify many F_1 hybrids in the field, it is surprising how few records there are. In 1962 and 1963, cross-fostering experiments (Harris 1970) produced at least 136 cross-fostered gulls on Skomer and 606 on Skokholm, while C. K. Britton ringed 143 cross-fostered birds in 1966. The survival of cross-fostered young is very high, averaging 60–70% per annum up to breeding age, including the fledging period. On Skokholm there were 31 mixed pairs in 1968 and 40 in 1969. Many of these pairs are still in existence, and many hundreds of hybrids must have been produced. Yet we have seen only four such birds in Dyfed, and the three birds seen on Skokholm in 1977 (Table I) included at least one and possibly two of these four. Moreover, an abortive cross-fostering experiment by Dr G. Thompson on Walney Island in 1968, involving 100 broods of both Herring and Lesser Black-backed Gulls, should have produced 100–150 fledglings. However, the number of hybrids known in the Walney population is still low, despite the thorough searches of Porter (1976).

The colonization of Iceland by the Herring Gull in the 1920s has resulted in so much interbreeding with the Glaucous Gull *L. hyperboreus* that by 1966 some 50% of the Icelandic population of these gulls was of hybrid origin (details in Ingolfsson 1970). This survival and spread of hybrids contrasts markedly with our findings of the apparently poor survival of Herring/Lesser Black-backed Gull hybrids in Britain. Presumably the latter must be at some great selective disadvantage, but it is not possible even to speculate what this might be.

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SUMMARY

Details and descriptions are given of three certain and 10–12 possible Herring/Lesser Black-backed Gull hybrids found in Britain, and the few previous instances are also listed. Most such cases seem to derive from cross-fostering experiments; 'natural' hybridization must be rare, but can occur from an egg or chick being adopted by another pair, the young being wrongly imprinted. Remarkably few hybrids are known in comparison with the numbers of mixed pairs that have resulted from cross-fostering in Dyfed and Cumbrian colonies; the hybrids must be at some great selective disadvantage.

REFERENCES

- CHABRZYK, G. and J. C. COULSON. 1976. Survival and recruitment in the Herring Gull *Larus argentatus*. *J. Anim. Ecol.* 45:187-203.
- HARRIS, M. P. 1970. Abnormal migration and hybridization of *Larus argentatus* and *L. fuscus* after inter-species fostering experiments. *Ibis* 112:488-498.
- INGOLFSSON, A. 1970. Hybridization of Glaucous Gulls *Larus hyperboreus* and Herring Gulls *L. argentatus* in Iceland. *Ibis* 112:340-362.
- JACKSON, E. E. 1966. The birds of Foula. *Scot. Birds* 4, suppl.:1-60.
- MYLNE, C. K. 1960. Bird notes from the Marloes Peninsula and Skomer, summer 1959. *Bird Notes* 6:127-131.
- PORTER, H. T. 1976. Species isolation in gulls. Unpublished B.Sc. thesis, Oxford.
- SPENCER, K. G. 1961. *Lancashire Bird Rept.* for 1960.
- STEGMANN, B. 1934. Über die formen der grossen Möwen (subgenus *Larus*) und ihre gegenseitigen Beziehungen. *J. Orn.* 82:340-380.
- VOOUS, K. H. 1960. *Atlas of European Birds*. London.

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