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**POPULATION TRENDS OF GULLS AND OTHER
SEABIRDS ON THE ISLE OF MAY IN 1992**

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Annual Report to Scottish Natural Heritage

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C O N T E N T S

SUMMARY

1 INTRODUCTION

2 SPECIES ACCOUNTS

2.1 Herring and lesser black-backed gulls

2.1.1 Gull nest count

2.1.2 Colour-ringing

2.1.3 Gull ringing and breeding output

2.2 Kittiwake

2.3 Guillemot

2.4 Razorbill

2.5 Shag

2.6 Eider

2.7 Oystercatcher

2.8 Great black-backed gull

3 THE FUTURE

4 PUBLICATIONS ON ISLE OF MAY SEABIRDS

5 TABLES

- 1. Details of the 1992 gull count**
- 2. Counting efficiency**
- 3. Counts of individual herring and lesser black-backed gulls**
- 4. Calculated gull nest totals in 1992**
- 5. Changes in numbers of gull nests 1991-92**
- 6. Details of herring gulls colour-ringed**
- 7. Details of lesser black-backed gulls colour-ringed**
- 8. Gull ringing totals**
- 9. Proportions of young gulls ringed in 1992**
- 10. Whole island counts of shag, kittiwake, guillemot and razorbill**
- 11. Kittiwake monitoring counts**
- 12. Monitoring counts of guillemots**
- 13. Changes in numbers of guillemots in monitoring plots**
- 14. Monitoring counts of razorbills**
- 15. Changes in numbers of razorbills**
- 16. Weather conditions during the monitoring counts**
- 17. Oystercatcher breeding 1992**
- 18. Oystercatcher adult colour-rings**
- 19. Population estimates of Isle of May seabirds, 1980-92.**

6. MAP 1 Oystercatcher nests in 1992

SUMMARY

1. The counts of herring and lesser black-backed gull nests (1462 and 751, respectively) were very similar to those in recent years.
2. Adult survival of the herring gull (at c.80%) is now lower than in the 1960s and 1970s. The survival of adult lesser black-backed gulls appear to be slightly higher (c. 85%).
3. Breeding success of herring gulls was high (1.52 young fledged per pair) whereas that of the lesser black-backed gull (1.04) was about average. In 1992, about 3,000 young gulls were reared on the island.
4. More kittiwakes bred in 1992 but the whole island count (6916 nests) was still lower than counts in 1988-90.
5. There was no significant changes in numbers of guillemot (17512 birds) or razorbill (2581 birds). The 1991 count of the latter is now thought to have been too low.
6. The count of shag nests (1634) was 10% up on that in 1991.
7. The count of eider nests (785) was the second highest ever.
8. Thirty-four pairs of oystercatchers bred but reared a total of only 6 young. Adult survival was 87%.

1 INTRODUCTION

1.1 Following a request for the Isle of May Bird Observatory in the early 1970s, NCC put considerable effort into reducing the numbers of herring gulls *Larus argentatus* and lesser black-backed gulls *L. fuscus* breeding on the Isle of May NNR, Fife during the 1970s and the 1980s. The British populations of both species are now declining and there is a need to obtain up-to-date information on adult survival rates and breeding output and to continue making annual assessments of the numbers of breeding gulls on the Isle of May. Such long-term data are essential for the sensible management of the National Nature Reserve.

In 1989 NCC gave ITE a contract to (1) make annual counts of the gull nests, (2) estimate the annual survival of adult herring and lesser black-backed gulls, (3) ensure that adequate samples of young of both species were ringed, and (4) estimate breeding output.

1.2 Cliff-nesting seabirds (guillemot *Uria aalge*, razorbill *Alca torda*, Shag *Phalacrocorax aristotelis*, and kittiwake *Rissa tridactyla*) form an important part of the nature conservation interest of the island. Changes in the numbers of seabirds are good indicators of the health of the marine environment and the populations of the Isle of May are well documented. Continuing annual estimates of the total breeding populations together with sample monitoring counts are required.

Although there are few critical data, the numbers of eiders *Somateria mollissima* and oystercatchers *Haematopus ostralegus* are thought to have declined when gull numbers were at their highest. Now that gull numbers have been reduced, eiders and oystercatchers appear to have increased. The Isle of May is receiving increasing numbers of human visitors which might have an adverse influence on these birds. Annual counts of the breeding populations are required for monitoring purposes. Measurement of breeding success is required to relate to population levels.

In 1991 a new contract for an expanded programme of work was agreed which required the following.

1.2.1 Herring and lesser black-backed gulls

- a) Organize whole island count of nesting gulls to establish population trends.
- b) Report on annual changes in numbers.
- c) Determine breeding success.
- d) Ensure that adequate numbers of young gulls are ringed.

- e) Report annually on the state of the populations.
- f) Determine adult survival rates of both species.

1.2.2 Cliff nesting seabirds

- a) Make total island annual counts.
- b) Make annual monitoring counts on fixed sample plots.

1.2.3 Eider - Make whole island nest count annually.

1.2.4 Oystercatcher

- a) Determine annual breeding population.
- b) Determine breeding output.
- c) Determine annual adult survival.

1.2.5 Set up and up-date annually a data base of counts of all species.

1.2.6 Collate counts and assess changes in numbers.

1.2.7 Publish the results of work funded by NCCS (now SNH).

1.2.8 Publicise the commitment of NCCS (now SNH) to seabird conservation and long-term population studies.

1.3 The puffin is excluded as this is the subject of an on-going study funded by BP and NERC.

1.4 Data on breeding success and the food of chicks are covered by a separate contract and these results are presented in a separate report to JNCC.

1.5 The second author was a SNH summer warden on the Isle of May with responsibility for carrying out much of this work.

1.6 Various people helped with the counts and they are acknowledged in the notes to the tables. For ease of comparison, the layout of the report follows past reports and layouts and numbering of the individual tables follow previous Summer Wardens' Annual reports.

2 SPECIES ACCOUNTS

2.1 Herring *Larus argentatus* and lesser black-backed gulls *Larus fuscus*.

2.1.1 Gull nest count

The count was carried out on 27-29 May 1992 by a team of people systematically searching the island and recording and marking all clutches and well-formed but empty nests (Table 1). The efficiency of counting was assessed by a single observer visiting an area immediately after the nests there had been counted and recording the proportion of nests and clutches found which has been marked during the count (Table 2). Overall, counting efficiency was 85%.

A total of 1897 nests and clutches were marked and the overall calculated total taking account of those missed was 2213. This total was very similar to the 1991 count (2235) and the 1990 count (2169). However, subtotals for various sections of the colony showed some substantial increases and declines in different parts of the colony (Table 5). Some of these changes could have been due to problems with the boundaries of counting areas, but some were certainly real, e.g. on South Plateau.

The most marked change in numbers during the last 10 years has occurred on the Maidens - the only area where adults were never culled nor eggs smashed. In 1984, there were 208 nests, in 1988 numbers peaked at 295 nests and the annual estimates have declined each year since - 290 in 1989, 261 in 1990, 213 in 1991 and 167 in 1992.

The proportions of herring and lesser black-backed gulls nesting in each area were assessed by counts of individual gulls visible from vantage points after they had been disturbed (Table 3). About 55% of the individual gulls estimated to be present on the island were checked. Assuming that these herring:lesser black-backed gull ratios were representative, there were 1462 herring gull nests and 751 lesser black-backed gull nests on the island (Table 4). The comparable 1991 totals were 1447 and 788 which suggests an increase of 1% in the herring gull numbers and a decrease of 5% in the lesser black-backed population. Overall there was little change in numbers in 1991-92 and numbers are still well below those in the early 1980s (Table 19).

2.1.2 Colour-ringing

Incubating adults were caught with walk-in traps. Each gull was given a unique colour-combination which always included a green ring with a large engraved M (as a colony specific ring). Each gull had its overall head-and-bill length measured which enabled it to be sexed after the cumulative frequency distribution curve had been plotted (see Coulson *et al.* Ibis, 125, (1983); 549-557). The head-and-bill lengths separating the larger males from the smaller females for herring and lesser black-backed gulls were 120 and 116 mm, respectively.

Of 155 herring gulls and 155 lesser black-backed gulls with colour-rings in 1991, 119 (76.8%) and 125 (80.6%) were resighted in 1992. The true survival rates will be higher than this as some individuals will have been still alive and have either been over-looked or moved elsewhere. Therefore, these figures should not be used without reference to M P Harris. In all, 8 herring gulls and 6 lesser black-backed gulls ringed in 1990 and not seen in 1991 were resighted in 1992. Including these increased the 1990-91 survival rates of the two species to 80.5% and 86.5%, respectively. In 1992, 29 additional herring gulls and 27 additional lesser black-backed gulls were colour ringed.

Most previous studies including those on the Isle of May in the 1960s and 1970s have found adult survival of the herring gull to be 90% or more for these species. The present findings continue to suggest that adult survival of Isle of May herring gulls has been substantially reduced. There are few previous data on the survival of lesser black-backed gulls.

The study was not aimed at determining the wintering ranges of these gulls but four breeding adult lesser black-backed gulls were reported in December or January - one each in Cornwall, Portugal, Spain and Morocco. The bird in Portugal was caught in fishing gear and released - it survived to return and breed on the Isle of May in 1992.

2.1.3 Young gulls ringed and breeding output

Totals of 1449 young herring and 508 young lesser black-backed gulls were ringed (Table 8). Virtually all of these were well-grown and most are thought to have fledged. A survey of c. 25% of the total of fledged or nearly fledged young present found that 65% had been ringed (Table 9). This compared with 67%-71% in 1989-91. Assuming that this figure was representative of both species, 2222 young herring and 779

young lesser black-backed gulls should have fledged in 1992; this is 1.52 and 1.04/nest, respectively. These figures compared with almost exactly one young fledged pair by both species in 1989, 1.23 and 0.54 for herring and lesser black-backed gulls in 1990 and 1.88 and 0.98 in 1991. The reason for the lower success of lesser black-backed gulls is unclear.

2.2 Kittiwake *Rissa tridactyla*

The whole island count of 6916 nests was 6% higher than that recorded in 1991 (Table 10). This increase was also apparent in the counts of nests in the monitoring plots (Table 11). Despite this increase the population is still substantially lower than in 1988-90. Three pairs bred on SE Rona and more pairs bred in the inner and north side of Colm's Hole and in Ardcarron Gulley than had in recent years.

2.3 Guillemot *Uria aalge*

Breeding was earlier than usual and so the monitoring counts were started on 31 May and completed on 18 June. This was before the first major fledging night, although the earliest chicks were recorded leaving on the night of 7/8 June. The mean counts of individual birds in all 13 plots and the overall total were not significantly different from those in 1991 (Tables 12 and 13). The colonies on Greengates continue to expand up the cliffs and towards the Loch.

The total island count was 17512 individuals - a 4% increase over the 1991 figure. After conversion of each individual areas count to pairs using a correction factor obtained at the time from the daily checks at the Cornerstone study area, the number of pairs breeding appeared to have increased by 11% (11511 in 1992 from 11440 in 1991) (Table 10). Checks during the middle of the day during 31 May to 25 June to determine whether a chick was attended by one or both adults found that, on average, 10% had 2 adults present. The corresponding figures in 1991 and 1990 were 24% and 12%. Thus it appears as though as previously suggested, adults had spent less time at the colony in 1991 than they usually do.

The general picture is of little change in total numbers following a decline 1983-88 (Table 19). Other work suggests that this stabilization is due to a high survival of chicks reared in 1986 and 1987. Many 1986 young entered the breeding population in 1992.

2.4 Razorbill *Alca torda*

As is usual with this species the monitoring counts were very erratic with the daily total varying 444-645 (Table 14). The 5% increase between 1991 and 1992 was not statistically significant (Table 15).

The whole island count of birds (2581) was 58% up on the 1991 count, which was 31% down on the 1990 count. After conversion to pairs (same method as for guillemots), the difference between 1992 and 1991 was +34% (Table 10). We now consider that the 1991 population estimate must have been far too low but we have no idea why.

The counts indicate no clear pattern of change in numbers in recent years but we suspect that there has been an overall increase as there have been marked extensions of breeding areas, e.g. Greengates up the cliff and "inland" towards the Loch and the inner part of Cornerstone.

2.5 Shag *Phalacrocorax aristotelis*

Overall, there appeared to be a large number of breeding birds present and a record nest-count was anticipated. Breeding started extremely early with the first eggs being laid about 16 March. Very large numbers of birds were present and nests were started in many previously-unused areas. However, severe gales in late March/early April resulted in many losses. Later in the season birds showed signs of being short of food. 1992 had a very protracted laying period. Indeed eggs were still being laid in August! Other studies indicated that 73% of nests built in 1992 were in existence during the annual island count (below).

The nest count in late May/early June was 1634 - 10% up on that of 1991 (1487) - the highest since 1989 (1703) but well below the maximum (1916 in 1987) (Tables 10 and 19). Birds bred or built nests in several new areas including near the Mars Wreck, North Ness, Rona (east), inland in boulders at Colm's Hole, between South Ness and Ardcarran and at Tarbet. Very few breeders showed any traces of immature plumage.

2.6 Eider *Somateria mollissima*

503 nests were recorded during the whole island count 27-29 May (excluding the beacon tern area). A subsequent visit to the tern area located an additional 56 nests. Counting efficiency was estimated at 69% (69 out of 100 marked nest found) suggesting a total of about 810 nests.

This is higher than most recent counts and comes close to the highest ever count in 1990 of 845. Such a high figure is not supported by counts of birds on the sea during May nor, it has to be said, by the general impression of fieldworkers.

Clutch sizes: c/0 (2), c/1 (5), c/2 (9), c/3 (25), c/4 (16), c/5 (7).

2.7 Oystercatcher *Haematopus ostralegus*

Twenty-eight pairs were proved to breed, and six others almost certainly did so (Table 19). Most of these six appeared to lose eggs very early in the season and never relaid. In addition, one pair held a territory but was considered not to have laid. The population has remained approximately stable, at 30-36 pairs, since 1982.

Six pairs each reared one young. Thus breeding success was low at 0.17 chicks fledged per pair. Details of breeding are given in Table 17 and the distribution of pairs in Map 1. Breeding oystercatchers have been caught in nest-traps for many years. Survival between 1991 and 1992 was 87% (53/61 birds) which is higher than average. Four new adults were colour-ringed in 1992. Six breeding adults remain unringed at the end of the season, one of these was individually identifiable because it had a deformed leg. A colour-ringed adult was recorded on Coquet Island on two dates in May. It is unclear whether or not it bred but this is the first suggestion that Isle of May Oystercatchers may sometimes desert the island.

2.8 Great black-backed gull *Larus marinus*

Eight pairs bred, all but one rearing young. At least 11 young are thought to have fledged. This is twice the maximum number breeding on the island previously and is close to the reserve's management plan's quota of 10 pairs.

3 THE FUTURE

3.1 The arrangements whereby one of the summer wardens worked under the direction of the contractor for much of the breeding season continued to be very successful and should be continued.

3.2 It is relatively easy to mark large samples of birds for the estimation of survival rates but much greater effort is needed to ensure adequate levels of resighting for survival estimates. Changes of only a few percent in the survival rates of these long-lived species have a highly significant effect in demographic terms. Each year we both spent many hours each day looking for colour-rings.

3.3 Data collection on gull numbers, breeding output and adult survival is proceeding well. Within a year or two a detailed analysis will be made of the population dynamics of the Isle of May gulls since culling ceased.

3.4 Accurate knowledge of population structure and dynamics is essential in assessing the interactions of seabirds and their prey. This knowledge can only come from the long-term studies. Very few such studies are now being started which increases substantially the value of ongoing ones. It is imperative that those on the Isle of May continue. NCCS should continue to play its part, and its monetary and logistic support are gratefully acknowledged.

3.5 The financial input to the Isle of May studies comes from SNH, JNCC, the Department of the Environment, BP Exploration (for puffins) and NERC. Hopefully this funding will continue and the Isle of May seabirds continue to get the attention they deserve.

3.6 In 1991 several foreign fishing boats were reported fishing for sandeels at the Cockenzie and Marr Banks, northeast of the Isle of May. Some Isle of May auks and kittiwakes will almost certainly feed in this area. Unconfirmed report from local fisherman in 1992 suggested a large increase in the numbers of these boats (to maybe 50) in 1992. Although there is no direct evidence that an industrial fishery for sandeels affects food availability for seabirds, any future development of this fishery must be of interest to those concerned with Isle of May seabirds.

4 PUBLICATIONS ON ISLE OF MAY SEABIRDS SINCE THE LAST CONTRACT REPORT

Harris, M.P. 1991.

Population changes in British common murres and Atlantic puffins, 1969-88.

In: *Studies of high-latitude seabirds. 2. Conservation biology of thick-billed murres in the northern Atlantic*, edited by A.J. Gaston & R.D. Elliott, 52-61. (Canadian Wildlife Service occasional paper no. 69). Ottawa: Environment Canada.

Hislop, J.R.G., Harris, M.P. & Smith, J.G.M., 1991.

Variation in the calorific value and total energy content of the lesser sandeel (*Ammodytes marinus*) and other fish preyed on by seabirds. *Journal of Zoology*, 224, 501-517.

Harris, M.P. Webb, A. & Tasker, M.L. 1991

Growth of young guillemots *Uria aalge* after leaving the colony. *Seabird*, 13, 40-44.

Harris, M.P. & Wanless, S. 1991.

The importance of the lesser sandeel *Ammodytes marinus* in the diet of the shag *Phalacrocorax aristotelis*. *Ornis Scandinavica*, 22, 375-382.

Harris, M.P. 1992.

North Sea puffins

NERC News, no. 20, 8-9.

Harris, M.P. & Bailey, R.S. 1992.

Mortality rates of puffin *Fratercula arctica* and guillemot *Uria aalge* and fish abundance in the North Sea.

Biological Conservation, 60, 39-46.

Harris, M.P., Halley, D. & Wanless, S. (in press).

The post-fledging survival of young Guillemots *Uria aalge* in relation to hatching date and growth.

Ibis.

Harris, M.P. & Wanless, S. (in press)

The diet of young and adult Shags *Phalacrocorax aristotelis* during the chick-rearing period assessed by three methods.

Bird Study.

- Wanless, S., Harris, M.P. & Russell, A.F. (in press)
Factor influencing food load sizes brought in by Shags *Phalacrocorax aristotelis* during chick-rearing.
Ibis.
- Wanless, S. & Harris, M.P. (in press).
Activity budgets, diet and breeding success of Kittiwakes *Rissa tridactyla* on the Isle of May.
Bird Study.
- Wanless, S. & Harris, M.P. (in press)
At-sea activity budgets of a pursuit-diving seabird monitored by radio-telemetry.
Wildlife Telemetry.
- Wanless, S., Corfield, T., Harris, M.P., Buckland, S.T. and Morris, J.A. (in press)
Diving behaviour of the shag *Phalacrocorax aristotelis* in relation to water depth and prey size.
Journal of Zoology.

Table 1. Counts and contents of herring and lesser black-backed gull nests, 27 - 29 May 1992.

	Empty nest	1	2	3	Contents unknown	Total	Counting efficiency (%)	Total nests present
Mars Rocks	2	0	0	4	0	6	50	12
North Ness to Rocks	23	18	31	107	0	179	90	199
North Horn to Iron Bridge	12	9	18	45*	1	85	80	106
Iron Bridge to Altarstanes	1	1	6	14	0	22	80	28
East Rona	34	28	60	258	0	380	93	409
Tarbet	13	10	25	61	0	109	90	121
Low Light to Tarbet	1	4	7	40	0	52	92	57
Low Light Rocks	0	0	2	12	5	19	29	66
Cleaver	0	0	0	0	3	3	100	3
Lady's Bed Stacks	0	0	0	0	7	7	100	7
South Ness Rocks	0	0	2	9	0	11	100	11
Ardcarran Rocks	0	2	0	9	0	11	92	12
Kirk Haven Rocks	0	0	1	0	0	1	100	1
Pillow	0	0	0	0	3	3	100	3
Burrian	4	4	14	62	10	94	79	119
Altarstanes to Horse Hole	0	0	5	7	1	13	68	19
Colm's Hole	4	2	5	20	1	32	79	41
Kettle to Colm's Hole	30	4	34	86	0	154	90	171
South Horn Cliffs	1	0	1	4	1	7	90	8
South Horn	3	2	2	5	0	12	86	14
Lady's Bed	12	7	8	50	0	77	86	90
Ardcarran to Kirk Haven	13	8	17	73	5	116	92	126
Three Tarn Nick-Horse Hole	29	25	44	173	0	271	80	339
Horse Hole	0	0	0	5	5	10	80	13
Clett	0	1	0	0	0	1	100	1
Middens	0	0	3	8	0	11	100	11
South Lochside	0	0	0	0	2	2	100	2
Cornerstone to Pilgrims' Haven	0	0	0	0	3	3	100	3
South Plateau Cliffs	0	0	0	0	5	5	100	5
South Plateau	4	2	1	2	9	9	80	11
North Lochside	0	0	0	0	2	2	100	2

Table 1 (contd.)

	Empty nest	1	Eggs 2	3	Contents unknown	Total	Counting efficiency (%)	Total nests present
Three Tarn Nick to Lochside	1	1	1	0	18	21	80	26
Maidens (Innes)	3	10	31	29	4	77	92	84
(Outer)	2	5	20	42	2	71	92	77
(Sea rocks)	0	1	1	4	13	19	92	21
East Braes	0	0	1	0	0	1	100	1
Totals	192	144	340	1129	91	1896		2219

Notes: * incl 1 c/4

Counts were made by N. Mann, R. Charles, J. Graves, A. Duncan, T. Barton and the authors

Table 2. Counting efficiency of gull nests during the whole island nest count, 27-29 May 1992.

	Sample checked	No. found to to be marked	%
Mars Rocks	10	5	50
North Ness	63	57	90
North Horn to Altarstanes	35	28	80
East Rona	58	54	93
Tarbet	59	53	90
Low Light to Tarbet	24	22	92
Low Light Rocks	7	2	29
Burrian to Colm's Hole	66	52	79
Kettle to Colm's Hole	82	74	90
Lady's Bed	29	25	86
Ardcarran to Kirkhaven	36	33	92
Three Tarn to Horse Hole	120	96	80
<hr/>			
Total	589	501	85
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Checks were made by C. Wernham

Table 3 Counts of individual herring and lesser black-backed gulls on 27 May 1992

	Counted		Total	%	
	HG	LB		HG	LB
North Ness	184	61	245	75	25
North Ness to Horn	56	70	126	44	56
North Horn to Bridge	31	10	41	76	24
Bridge to Altarstanes	36	0	36	100	0
Rona (east)	368	249	617	60	40
Tarbet	134	25	159	84	16
Tarbet to Low Light	36	7	43	84	16
Altarstanes to Horse Hole	13	1	14	93	7
Burrian	112	41	153	73	27
Colm's Hole	25	0	25	100	0
Kettle	140	115	255	55	45
South Horn	18	21	39	46	54
Lady's Bed	113	73	186	61	39
Ardcarran	63	39	102	62	38
Ardcarran to Kirkhaven	9	5	14	64	36
North Plateau - North	97	196	293	33	67
- South	2	1	3	67	33
South Plateau	4	12	16	25	75
South Ness	41	0	41	100	0
Counts of nests					
Mill Door - North side	8	0			
Lochside - North side	1	0			
Greenface	5	0			
Pillow	3	0			
Low Light	18	2			

Table 4. Calculated nest totals in 1992.

	Total nests present	% Herring gulls	Calculated nest total Herring gull	Calculated nest total Lesser Black- backed gull
Mars Rocks	12	100	12	0
North Ness to Rocks	199	75	149	50
North Horn to Iron Bridge	106	52	55	51
Iron Bridge to Altarstanes	28	100	28	0
East Rona	409	60	245	164
Tarbet	121	84	102	19
Low Light to Tarbet	57	84	47	10
Low Light Rocks	66	90	59	7
Cleaver	3	100	3	0
Lady's Bed Stacks	7	100	7	0
South Ness Rocks	11	100	11	0
Ardcarran Rocks	12	64	8	4
Kirk Haven Rocks	1	100	1	0
Pillow	3	100	3	0
Burrian	119	73	87	32
Altarstanes to Horse Hole	19	93	18	1
Colm's Hole	41	100	41	0
Kettle to Colm's Hole	171	55	94	77
South Horn Cliffs	8	100	8	0
South Horn	14	46	6	8
Lady's Bed	90	61	55	35
Ardcarran to Kirk Haven	126	62	78	48
Three Tarn Nick to Horse Hole	339	33	112	227
Horse Hole	13	100	13	0
Clett	1	100	1	0
Middens	11	100	11	0
South Lochside	2	100	2	0
Cornerstone Pilgrims' Haven	3	100	3	0
South Plateau Cliffs	5	100	5	0
South Plateau	11	25	3	8
North Lochside	2	100	2	0

Table 4 (Contd.)

	Total nests present	% Herring gulls	Herring gull	Lesser Black- backed gull
Three Tarn Nick to Lochside	26	66	17	9
Maidens (Inner)	84	100	84	0
(Outer)	77	100	77	0
(Sea rocks)	21	100	21	0
East Braes	1	0	0	1
Totals	2219		1468	751

Table 5. Changes in estimated numbers of gull nests in 1991-92. Small areas are excluded.

	1991 estimate	1992 estimate	% change
Kettle to Colm's Hole	248	171	-31
Colm's Hole	21	41	+95
Burrian	126	119	-6
Low Light Rocks	54	66	+22
Tarbet to Low Light	77	57	-26
Tarbet	117	121	+3
Rona-East	359	409	+14
North Ness and Mars Rocks	208	211	+1
Three Tarn to Horse Hole	305	339	+11
South Plateau and cliffs	39	16	-59
Lady's Bed and South Ness	146	108	-26
Maidens (all)	213	183	-14
Lochside-Three Tarn Cliffs	14	26	+86
Ardcarran/Kirk Haven	150	138	-8
Total (incl. other areas)	2235	2219	-1

Table 6. Details of breeding herring gulls colour-ringed on the Isle of May in 1989-1992

Colour rings: All below joint, M = Green engraved with a white M

ZZZ = lost ring

CYS = Cyst

BTO ring above joint on left leg

Sex: by bill-and-head length, M = male, F = female

Locality code (under year)

M	= Maidens	TAR	= Tarbet
A	= Ardcarran	CH	= Colm's Hole
K	= Kettle	R/Ron	= Rona
LB	= Lady's Bed	NH	= North Horn
NP	= North Plateau	DED	= Found dead before that season
BUR	= Burrian	D	= Found dead after being seen on island that season

Second column is for October of that year.

Bird No.	Ring No.	Left leg	Right leg	Sex	1989	1990	1991	1992
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1	GG58238	MMM-RED	RED-WHI	HG
2	GG58239	MMM-BLK	RED-WHI	HG
3	GG58240	MMM-GRN	RED-WHI	HG
4	GG58241	MMM-BLU	RED-WHI	HG
5	GG58242	MMM-YEL	RED-WHI	HG
6	GG58243	MMM-WHI	RED-WHI	HG
7	GG58244	MMM-RED	RED-GRN	HG
8	GG58245	MMM-BLK	RED-GRN	HG
9	GG58246	MMM-GRN	RED-GRN	HG
10	GG58247	MMM-BLU	RED-GRN	HG
11	GG58248	MMM-YEL	RED-GRN	HG
12	GG58249	MMM-WHI	RED-GRN	HG
13	GG58250	MMM-BLK	YEL-YEL	HG
14	GG58257	MMM-GRN	RED-BLK	HG
15	GG58258	MMM-YEL	RED-BLK	HG
16	GG58259	MMM-RED	RED-ZZZ	HG
17	GG58260	MMM-YEL	RED-BLK	HG
18	GG58261	MMM-WHI	ZZZ-BLK	HG
19	GG58262	MMM-RED	RED-BLU	HG
20	GG58263	MMM-BLK	RED-BLU	HG
21	GG58264	MMM-GRN	RED-BLU	HG
22	GG58265	MMM-BLU	RED-BLU	HG
23	GG58266	MMM-YEL	RED-BLU	HG
24	GG58267	MMM-WHI	RED-BLU	HG
25	GG58268	MMM-RED	RED-YEL	HG
26	GG58269	MMM-BLK	RED-YEL	HG
27	GG58270	MMM-GRN	RED-YEL	HG
28	GG58271	MMM-BLU	RED-YEL	HG
29	GG58272	MMM-YEL	RED-YEL	HG
30	GG58273	MMM-WHI	RED-YEL	HG
31	GG58274	MMM-RED	BLK-RED	HG
32	GG58275	MMM-BLK	BLK-RED	HG
33	GG58276	MMM-GRN	BLK-RED	HG
34	GG58277	MMM-BLU	BLK-RED	HG
35	GG58278	MMM-YEL	BLK-RED	HG
36	GG58279	MMM-WHI	BLK-RED	HG
37	GG58280	MMM-RED	GRN-RED	HG
38	GG58281	MMM-BLK	GRN-RED	HG
39	GG58282	MMM-GRN	GRN-RED	HG
40	GG58283	MMM-BLU	GRN-RED	HG
41	GG58284	MMM-YEL	GRN-RED	HG
42	GG58285	MMM-WHI	GRN-RED	HG
43	GG58286	MMM-RED	BLU-RED	HG
44	GG58287	MMM-BLK	BLU-RED	HG
45	GG58288	MMM-GRN	BLU-RED	HG
46	GG58289	MMM-BLU	BLU-RED	HG
47	GG58290	MMM-YEL	BLU-RED	HG
48	GG58291	MMM-WHI	BLU-RED	HG
49	GG58292	MMM-RED	YEL-RED	HG
50	GG58293	MMM-BLK	YEL-RED	HG
51	GG58294	MMM-GRN	YEL-RED	HG
52	GG58295	MMM-BLU	YEL-RED	HG
53	GG58296	MMM-YEL	YEL-YEL	HG
54	GG58297	MMM-WHI	YEL-RED	HG
55	GG58298	MMM-RED	WHI-RED	HG
56	GG58299	MMM-BLK	WHI-RED	HG
57	GG58300	MMM-GRN	WHI-RED	HG
58	GG58301	MMM-BLU	WHI-RED	HG
59	GG58302	MMM-YEL	WHI-RED	HG
60	GG58303	MMM-WHI	WHI-RED	HG
61	GG58304	MMM-RED	BLK-GRN	HG

F	M	-	M	-	-	-	M	-
M	M	-	-	-	-	-	-	-
F	M	-	M	-	M	-	M	-
M	M	-	M	-	TAR	-	-	-
M	M	-	M	-	M	-	M	-
M	M	-	Y	-	M	-	M	-
F	K	-	K	-	-	-	K	-
F	A	-	A	-	-	-	A	-
F	A	-	A	-	-	-	-	-
F	A	-	A	-	-	-	-	-
F	M	-	A	-	-	-	A	-
F	A	-	A	-	A	-	A	-
M	M	-	M	-	M	-	-	-
M	M	-	A	-	A	-	A	-
F	M	-	A	-	-	-	-	-
M	CH	-	CH	-	CH	-	CH	-
M	CH	-	-	-	-	-	-	-
F	CH	-	CH	-	CH	-	CH	-
M	A	-	A	-	-	-	A	-
M	A	-	A	-	A	-	LB	-
M	A	-	A	-	A	-	-	-
M	A	-	-	-	-	-	-	-
M	A	-	A	-	A	-	-	-
F	TAR	-	TAR	-	TAR	-	-	-
F	TAR	-	TAR	-	-	-	-	-
F	TAR	-	TAR	-	-	-	-	-
M	M	-	-	-	-	-	-	-
F	M	-	-	-	-	-	-	-
F	K	-	K	-	K	-	K	-
F	TAR	-	TAR	-	TAR	-	TAR	-
F	TAR	-	TAR	D	-	-	-	-
F	TAR	-	TAR	-	TAR	-	-	-
F	TAR	-	TAR	-	-	-	-	-
M	K	-	K	-	-	-	-	-
M	K	-	-	-	-	-	-	-
F	K	-	K	-	-	-	-	-
F	K	-	K	-	-	-	-	-
F	TAR	-	M	-	TAR	-	TAR	-
M	K	-	-	-	K	D	-	-
M	A	-	-	-	-	-	-	-
M	A	-	A	-	-	-	-	-
M	A	-	A	-	A	-	-	-
F	A	-	NH	-	-	-	-	-
M	M	-	M	-	M	-	M	-
M	M	-	M	-	-	-	-	-
M	M	M	M	-	M	-	M	-
M	M	-	M	-	M	-	-	-
F	M	-	A	-	A	-	BUR	-
M	A	-	A	-	-	-	-	-
F	A	-	A	-	A	-	A	-
F	A	-	A	-	A	-	A	-
M	A	M	A	-	A	M	A	-
M	A	-	-	-	DED	-	-	-
F	A	-	SN	-	NH	-	A	-
M	A	-	A	-	A	-	A	-
M	A	-	A	-	A	-	-	-
M	NH	-	NH	-	T	-	-	-
F	TAR	-	TAR	-	TAR	-	TAR	-
M	NH	-	-	-	NH	-	NH	-
F	NH	-	NH	-	NH	D	-	-
F	A	-	-	-	-	-	-	-

62	GG58305	MMM-BLK	BLK-GRN	HG
63	GG58306	MMM-GRN	BLK-GRN	HG
64	GG58307	MMM-BLU	BLK-GRN	HG
65	GG58308	MMM-YEL	BLK-GRN	HG
66	GG58309	MMM-WHI	BLK-GRN	HG
67	GG58310	MMM-RED	BLK-BLU	HG
68	GG58311	MMM-BLK	BLK-BLU	HG
69	GG58312	MMM-GRN	BLK-BLU	HG
70	GG58313	MMM-BLU	BLK-BLU	HG
71	GG58314	MMM-YEL	BLK-BLU	HG
72	GG58315	MMM-WHI	BLK-BLU	HG
73	GG58316	MMM-RED	BLK-YEL	HG
74	GG58317	MMM-BLK	BLK-YEL	HG
75	GG58318	MMM-GRN	BLK-YEL	HG
76	GG58319	MMM-BLU	BLK-YEL	HG
77	GG58320	MMM-YEL	BLK-YEL	HG
78	GG58321	MMM-WHI	BLK-YEL	HG
79	GG58322	MMM-RED	BLK-WHI	HG
80	GG58323	MMM-BLK	BLK-WHI	HG
81	GG58324	MMM-GRN	BLK-WHI	HG
82	GG58325	MMM-BLU	BLK-WHI	HG
83	GG58326	MMM-YEL	BLK-WHI	HG
84	GG58327	MMM-WHI	BLK-WHI	HG
85	GG58328	MMM-RED	BLK-BLK	HG
86	GG58329	MMM-BLK	BLK-BLK	HG
87	GG58330	MMM-GRN	BLK-BLK	HG
88	GG58331	MMM-BLU	BLK-BLK	HG
89	GG58332	MMM-YEL	BLK-BLK	HG
90	GG58333	MMM-WHI	BLK-BLK	HG
91	GG58334	MMM-RED	GRN-BLK	HG
92	GG58335	MMM-BLK	GRN-BLK	HG
93	GG58336	MMM-GRN	GRN-BLK	HG
94	GG58337	MMM-BLU	GRN-BLK	HG
95	GG58338	MMM-YEL	GRN-BLK	HG
96	GG58339	MMM-WHI	GRN-BLK	HG
97	GG58340	MMM-RED	BLU-BLK	HG
98	GG58341	MMM-BLK	BLU-BLK	HG
99	GG58342	MMM-GRN	BLU-BLK	HG
100	GG58343	MMM-BLU	BLU-BLK	HG
101	GG58344	MMM-YEL	BLU-BLK	HG
102	GG58345	MMM-WHI	BLU-BLK	HG
103	GG58346	MMM-RED	WHI-BLK	HG
104	GG58347	MMM-BLK	WHI-BLK	HG
105	GG58348	MMM-GRN	WHI-BLK	HG
106	GG58346	MMM-BLU	WHI-BLK	HG
107	GG58350	MMM-YEL	WHI-BLK	HG
108	GG58401	MMM-WHI	WHI-BLK	HG
109	GG58402	MMM-RED	GRN-BLU	HG
110	GG58403	MMM-BLK	YEL-BLK	HG
111	0000000	MMM-RED	YEL-BLK	HG
112	GG58404	MMM-GRN	YEL-BLK	HG
113	GG58405	MMM-BLU	YEL-BLK	HG
114	GG58406	MMM-YEL	YEL-BLK	HG
115	GG58407	BLK-BLU	ZZZ-CYS	HG
116	GG58408	MMM-WHI	YEL-BLK	HG
117	GG01525	MMM-RED	GRN-GRN	HG
118	GG58409	MMM-BLK	GRN-GRN	HG
119	GG58410	MMM-GRN	GRN-GRN	HG
120	GG58411	MMM-BLU	GRN-GRN	HG
121	GG58412	MMM-YEL	GRN-GRN	HG
122	GG58413	MMM-WHI	GRN-GRN	HG
123	GG58414	MMM-BLK	GRN-BLU	HG
124	GG58415	MMM-GRN	GRN-BLU	HG
125	GG58416	MMM-BLU	GRN-BLU	HG

F	A	-	A	-	A	-	A	-
M	M	-	M	-	-	-	-	-
F	M	-	LOW	-	-	-	-	-
M	M	-	M	-	-	-	-	-
F	M	-	-	-	LOW	-	LOW	-
F	M	-	M	-	A	-	A	-
F	K	-	K	-	K	-	K	-
F	M	-	C	-	CH	-	CH	-
M	M	-	M	M	M	-	NP	-
M	M	-	M	-	M	-	-	-
M	M	L	M	-	M	-	-	-
F	M	-	M	-	M	-	M	-
F	M	-	M	-	-	-	-	-
F	A	-	A	-	M	-	-	-
M	A	-	-	-	-	-	-	-
F	TAR	-	TAR	-	TAR	D	-	-
M	TAR	-	-	-	-	-	-	-
F	TAR	-	TAR	-	TAR	-	TAR	-
M	RON	-	RON	-	RON	-	-	-
F	A	-	-	-	TAR	-	-	-
F	A	-	-	-	-	-	-	-
M	A	-	-	-	-	-	-	-
M	A	-	A	-	A	-	A	-
F	M	-	A	-	A	-	-	-
M	M	-	M	-	M	-	M	-
F	M	-	M	D	-	-	-	-
M	M	-	-	-	-	-	-	-
F	M	-	M	-	M	-	M	-
M	A	-	A	-	A	-	-	-
M	RON	-	-	-	RON	-	RON	-
M	CH	-	A	-	-	-	-	-
F	CH	-	CH	-	CH	-	-	-
M	CH	-	CH	-	-	-	-	-
F	M	-	M	-	M	-	-	-
F	M	M	M	-	M	D	-	-
M	M	-	-	-	-	-	-	-
F	M	-	M	-	M	-	M	-
F	M	-	M	-	M	-	M	-
F	M	-	K	-	-	-	-	-
M	M	-	M	-	M	-	-	-
M	M	M	M	M	M	M	M	-
M	M	-	M	-	M	-	M	-
M	M	-	M	-	M	-	M	-
M	LB	-	A	-	-	-	A	-
F	LB	-	LB	-	-	-	A	-
F	LB	-	LB	-	LB	-	LB	-
F	TAR	-	TAR	-	NH	-	TAR	-
F	CH	-	CH	-	CH	-	R	-
F	TAR	-	TAR	-	-	-	-	-
M	TAR	-	TAR	-	TAR	A	TAR	-
M	NH	-	NH	-	NH	M	NH	-
F	M	-	M	-	-	-	-	-
M	M	M	M	-	M	M	M	-
M	M	-	M	-	M	-	M	-
M	M	-	M	-	M	-	NH	-
M	M	M	A	-	A	-	-	-
F	M	-	K	-	M	-	-	-
M	M	-	M	-	M	-	-	-
M	M	-	M	-	M	D	-	-
F	TAR	-	TAR	-	TAR	-	TAR	-
F	TAR	-	ARD	-	ARD	-	ARD	-
M	CH	-	CH	-	CH	-	CH	-
M	CH	-	-	-	-	-	CH	-
F	CH	-	-	-	CH	-	CH	-

126	GG58417	MMM-YEL	GRN-BLU	HG
127	GG58418	MMM-WHI	GRN-BLU	HG
128	GG58419	MMM-RED	GRN-YEL	HG
129	GG58420	MMM-BLK	GRN-YEL	HG
130	GG58421	MMM-GRN	GRN-YEL	HG
131	GG58422	MMM-BLU	GRN-YEL	HG
132	GG58423	MMM-YEL	GRN-YEL	HG
133	GG58423	MMM-WHI	GRN-YEL	HG
134	GG58425	MMM-RED	GRN-WHI	HG
135	GG58426	MMM-BLK	GRN-WHI	HG
136	GG58427	MMM-GRN	GRN-WHI	HG
137	GG58428	MMM-BLU	GRN-WHI	HG
138	GG58429	MMM-YEL	GRN-WHI	HG
139	GG58430	MMM-WHI	GRN-WHI	HG
140	GG58431	MMM-RED	BLU-GRN	HG
141	GG58432	MMM-BLK	BLU-GRN	HG
142	GG58433	MMM-GRN	BLU-GRN	HG
143	GG58434	MMM-BLU	BLU-GRN	HG
144	GG58435	MMM-YEL	BLU-GRN	HG
145	GG58436	MMM-WHI	BLU-GRN	HG
146	GG58437	MMM-RED	YEL-GRN	HG
147	GG58438	MMM-BLK	YEL-GRN	HG
148	GG58439	MMM-GRN	YEL-GRN	HG
149	GG58440	MMM-BLU	YEL-GRN	HG
150	GG58441	MMM-YEL	YEL-GRN	HG
151	GG58442	MMM-WHI	YEL-GRN	HG
152	GG58443	MMM-RED	WHI-GRN	HG
153	GG58444	MMM-BLK	WHI-GRN	HG
154	GG58445	MMM-GRN	WHI-GRN	HG
155	GG58446	MMM-BLU	WHI-GRN	HG
156	GG58447	MMM-YEL	WHI-GRN	HG
157	GG58448	MMM-WHI	WHI-GRN	HG
158	GG58449	MMM-RED	YEL-WHI	HG
159	GG65506	YEL-WHI	MMM-WHI	HG
160	GG65507	MMM-GRN	YEL-WHI	HG
161	GG65508	MMM-BLK	YEL-WHI	HG
162	GG65509	YEL-WHI	MMM-YEL	HG
163	GG65510	MMM-RED	WHI-BLU	HG
164	GG65511	MMM-BLU	YEL-WHI	HG
165	GG65512	MMM-WHI	WHI-BLU	HG
166	GG65513	MMM-GRN	WHI-BLU	HG
167	GG65514	MMM-BLK	WHI-BLU	HG
168	GG65515	MMM-BLU	WHI-BLU	HG
169	GG65516	MMM-RED	WHI-YEL	HG
170	GG65516	MMM-GRN	WHI-YEL	HG
171	GG65518	MMM-BLK	WHI-YEL	HG
172	GG10995	MMM-WHI	WHI-YEL	HG
173	GG65519	MMM-BLU	WHI-YEL	HG
174	GG65520	MMM-YEL	WHI-YEL	HG
175	GG65521	MMM-RED	BLU-WHI	HG
176	GG65522	MMM-WHI	BLU-WHI	HG
177	GG65523	MMM-GRN	BLU-WHI	HG
178	GG65519	MMM-BLU	BLU-WHI	HG
179	GG65526	MMM-BLK	BLU-WHI	HG
180	GG65527	MMM-RED	YEL-YEL	HG
181	GG65531	MMM-YEL	BLU-WHI	HG
182	GG65534	MMM-RED	BLU-BLU	HG
183	GG65539	MMM-WHI	BLU-BLU	HG
184	GG07915	MMM-BLK	BLU-BLU	HG
185	GG65543	MMM-GRN	BLU-BLU	HG
186	GG65546	MMM-BLU	BLU-BLU	HG
187	GG65563	MMM-YEL	BLU-BLU	HG
188	GG65567	MMM-RED	BLU-YEL	HG
189	GG65576	MMM-WHI	BLU-YEL	HG

M	LB	-	LB	-	-	LB	-
F	LB	-	A	-	LB	LB	-
F	NH	-	NH	-	NH	-	-
M	LB	-	A	-	LB	LB	-
F	LB	-	A	-	A	LB	-
M	NH	-	NH	-	NH	NH	-
M	LB	-	A	-	LB	LB	-
M	LB	-	LB	-	LB	LB	-
F	LB	-	A	-	-	LB	-
M	LB	-	A	-	NH	D	-
F	K	-	K	-	K	K	-
F	NH	-	NH	-	NH	NH	-
M	CH	-	CH	-	CH	-	-
F	CH	-	CH	-	CH	CH	-
M	NP	-	-	-	-	-	-
M	R	-	R	-	R	R	-
F	R	-	-	-	R	R	-
M	K	-	K	-	K	K	-
F	R	-	-	-	NH	-	-
F	R	-	R	-	R	NH	-
F	R	-	-	-	NH	-	-
M	NH	-	NH	-	NH	NH	-
M	NH	-	NH	-	MH	-	-
M	NH	-	NH	-	NH	NH	-
M	NH	-	-	-	-	-	-
F	NH	-	NH	-	NH	NH	-
F	NH	-	-	-	-	-	-
F	NH	-	NH	D	-	-	-
F	NH	-	NH	-	NH	NH	-
F	NH	-	NH	-	-	-	-
M	NH	-	NH	-	NH	NH	-
M	NH	-	NH	-	NH	NH	-
F	NH	-	-	-	NH	NH	-
F	-	-	M	-	M	M	-
M	-	-	M	-	M	BUR	D
M	-	-	M	-	M	M	-
M	-	-	M	-	M	M	-
M	-	-	M	-	-	M	-
M	-	-	M	-	M	M	M
F	-	-	M	-	M	M	-
F	-	-	M	-	-	M	-
F	-	-	M	-	M	-	-
M	-	-	M	-	M	-	-
F	-	-	M	-	M	M	M
M	-	-	M	-	M	M	M
M	-	-	M	-	-	-	-
F	-	-	M	-	M	LB	-
?	-	-	M	-	-	-	-
M	-	-	M	-	M	M	-
M	-	-	M	-	-	-	-
F	-	-	M	-	M	M	-
M	-	-	M	-	M	M	M
F	-	-	ARD	-	M	-	-
M	-	-	ARD	-	ARD	ARD	-
M	-	-	NP	-	NP	NP	-
M	-	-	NP	-	NP	NP	-
F	-	-	NP	-	NP	NP	-
F	-	-	NP	-	NP	NP	-
M	-	-	NP	-	NP	NP	-
F	-	-	NP	-	-	-	-
M	-	-	R	-	R	-	-

190	GG65577	MMM-GRN	BLU-YEL	HG	M	-	-	R	-	R	-	NH	-
191	GG65578	MMM-BLK	BLU-YEL	HG	M	-	-	R	-	-	-	-	-
192	GG65581	MMM-BLU	BLU-YEL	HG	M	-	-	R	-	R	-	-	-
193	GG65583	MMM-YEL	BLU-YEL	HG	F	-	-	R	-	R	-	R	-
194	GG65591	MMM-RED	YEL-BLU	HG	F	-	-	R	-	R	-	R	-
195	GG65593	MMM-WHI	YEL-BLU	HG	F	-	-	R	-	R	-	NH	-
196	GG67201	MMM-GRN	YEL-BLU	HG	F	-	-	-	-	M	M	M	-
197	GG67202	MMM-BLK	YEL-BLU	HG	M	-	-	-	-	M	-	M	-
198	GG76203	MMM-BLU	YEL-BLU	HG	M	-	-	-	-	M	-	M	-
199	GG67204	MMM-YEL	YEL-BLU	HG	F	-	-	-	-	M	M	M	-
200	GG67205	MMM-WHI	YEL-YEL	HG	F	-	-	-	-	M	M	M	-
201	GG67206	MMM-GRN	YEL-YEL	HG	F	-	-	-	-	M	-	M	-
202	GG67207	MMM-YEL	YEL-YEL	HG	F	-	-	-	-	M	M	M	-
203	GG67218	MMM-RED	RED-RED	HG	M	-	-	-	-	R	-	R	-
204	GG67222	MMM-WHI	RED-RED	HG	F	-	-	-	-	NH	-	NH	-
205	GG67223	MMM-GRN	RED-RED	HG	F	-	-	-	-	R	-	R	-
206	GG67225	MMM-BLK	RED-RED	HG	F	-	-	-	-	NH	-	NH	-
207	GG67227	MMM-BLU	RED-RED	HG	F	-	-	-	-	TAR	-	TAR	-
208	GG67230	MMM-YEL	RED-RED	HG	F	-	-	-	-	TAR	-	TAR	-
209	GG67239	MMM-RED	WHI-WHI	HG	F	-	-	-	-	NP	-	NP	-
210	GG67240	MMM-WHI	WHI-WHI	HG	M	-	-	-	-	NP	-	NP	-
211	GG67241	MMM-GRN	WHI-WHI	HG	F	-	-	-	-	NP	-	NP	-
212	GG67245	MMM-BLK	WHI-WHI	HG	M	-	-	-	-	NP	-	NP	-
213	GG67246	MMM-BLU	WHI-WHI	HG	M	-	-	-	-	TAR	-	TAR	-
214	GG67247	MMM-YEL	WHI-WHI	HG	F	-	-	-	-	TAR	-	TAR	-
215	GG67248	MMM-RED	RED-ORN	HG	F	-	-	-	-	TAR	-	TAR	-
216	GG82732	MMM-BLK	RED-ORN	HG	M	-	-	-	-	-	-	K	-
217	GG82735	MMM-BLU	RED-ORN	HG	M	-	-	-	-	-	-	K	-
218	GG82736	MMM-GRN	RED-ORN	HG	F	-	-	-	-	-	-	K	-
219	GG82738	MMM-WHI	RED-ORN	HG	M	-	-	-	-	-	-	K	-
220	GG82741	MMM-YEL	RED-ORN	HG	M	-	-	-	-	-	-	K	-
221	GG82744	MMM-ORN	RED-ORN	HG	F	-	-	-	-	-	-	K	-
222	GG82745	MMM-BLK	BLK-ORN	HG	F	-	-	-	-	-	-	K	-
223	GG82747	MMM-BLU	BLK-ORN	HG	M	-	-	-	-	-	-	ARD	-
224	GG82748	MMM-GRN	BLK-ORN	HG	M	-	-	-	-	-	-	ARD	-
224	GG82740	MMM-RED	BLK-ORN	HG	M	-	-	-	-	-	-	ARD	-
226	GG82689	MMM-WHI	BLK-ORN	HG	M	-	-	-	-	-	-	ARD	-
227	GG82691	MMM-YEL	BLK-ORN	HG	F	-	-	-	-	-	-	ARD	-
228	GG82694	MMM-ORN	BLK-ORN	HG	M	-	-	-	-	-	-	TAR	-
229	GG82695	MMM-BLK	BLU-ORN	HG	M	-	-	-	-	-	-	TAR	-
230	GG82696	MMM-BLU	BLU-ORN	HG	M	-	-	-	-	-	-	TAR	-
231	GG82697	MMM-GRN	BLU-ORN	HG	F	-	-	-	-	-	-	TAR	-
232	GG82698	MMM-RED	BLU-ORN	HG	F	-	-	-	-	-	-	TAR	-
233	GG82699	MMM-WHI	BLU-ORN	HG	M	-	-	-	-	-	-	TAR	-
234													

Table 7. Details of breeding lesser black-backed gulls colour-ringed on the Isle of May in 1989-1992

Colour rings: All below joint, M = Green engraved with a white M

ZZZ = lost ring

CYS = Cyst

BTO ring above joint on left leg

Sex: by bill-and-head length, M = male, F = female

Locality code (under year)

M = Maidens

A/ARD = Ardcarran

K = Kettle

LB = Lady's Bed

NP = North Plateau

BUR = Burrian

TAR = Tarbet

CH = Colm's Hole

R/Ron = Rona

NH = North Horn

DED = Found dead before that season

D = Found dead after being seen on island that season

Second column is for October of that year.

Bird No.	Ring No.	Left leg	Right leg	Sex	1989	1990	1991	1992
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1	GG58351	MMM-RED	BLU-RED	LBBG
2	GG58352	MMM-BLK	BLU-RED	LBBG
3	GG58353	MMM-GRN	BLU-RED	LBBG
4	GG58354	MMM-BLU	BLU-RED	LBBG
5	GG58355	MMM-WHI	BLU-RED	LBBG
6	GG58356	MMM-RED	BLU-GRN	LBBG
7	GG58357	MMM-RED	BLU-BLK	LBBG
8	GG58358	MMM-BLK	BLU-BLK	LBBG
9	GG58359	MMM-GRN	BLU-BLK	LBBG
10	GG58360	MMM-BLK	BLU-GRN	LBBG
11	GG58361	MMM-BLU	BLU-BLK	LBBG
12	GG58362	MMM-WHI	BLU-BLK	LBBG
13	GG58363	MMM-GRN	BLU-GRN	LBBG
14	GG58364	MMM-BLU	BLU-GRN	LBBG
15	GG58365	MMM-WHI	BLU-GRN	LBBG
16	GG58666	MMM-RED	BLU-BLU	LBBG
17	GG58367	MMM-BLK	BLU-BLU	LBBG
18	GG58368	MMM-GRN	BLU-BLU	LBBG
19	GG58369	MMM-BLU	BLU-BLU	LBBG
20	GG58370	MMM-WHI	BLU-BLU	LBBG
21	GG58371	MMM-RED	BLU-WHI	LBBG
22	GG58372	MMM-BLK	BLU-WHI	LBBG
23	GG58373	MMM-GRN	BLU-WHI	LBBG
24	GG58374	MMM-BLU	BLU-WHI	LBBG
25	GG58375	MMM-WHI	BLU-WHI	LBBG
26	GG58376	MMM-RED	RED-BLU	LBBG
27	GG58377	MMM-BLK	RED-BLU	LBBG
28	GG58378	MMM-GRN	RED-BLU	LBBG
29	GG58379	MMM-BLU	RED-BLU	LBBG
30	GG58380	MMM-WHI	RED-BLU	LBBG
31	GG58381	MMM-RED	BLK-BLU	LBBG
32	GG58382	MMM-BLK	BLK-BLU	LBBG
33	GG58383	MMM-GRN	BLK-BLU	LBBG
34	GG58384	MMM-BLU	BLK-BLU	LBBG
35	GG58385	MMM-WHI	BLK-BLU	LBBG
36	GG58386	MMM-RED	GRN-BLU	LBBG
37	GG58387	MMM-BLK	GRN-BLU	LBBG
38	GG58388	MMM-GRN	GRN-BLU	LBBG
39	GG58389	MMM-BLU	GRN-BLU	LBBG
40	GG58390	MMM-RED	WHI-BLU	LBBG
41	GG58391	MMM-WHI	GRN-BLU	LBBG
42	GG58392	MMM-BLK	WHI-BLU	LBBG
43	GG58393	MMM-GRN	WHI-BLU	LBBG
44	GG58394	MMM-BLU	WHI-BLU	LBBG
45	GG58395	MMM-WHI	WHI-BLU	LBBG
46	GG58396	MMM-RED	GRN-GRN	LBBG
47	GG58397	MMM-BLK	GRN-GRN	LBBG
48	GG58398	MMM-GRN	GRN-GRN	LBBG
49	GG58399	MMM-BLU	GRN-GRN	LBBG
50	GG58400	MMM-WHI	GRN-GRN	LBBG
51	GG58451	MMM-RED	GRN-RED	LBBG
52	GG58452	MMM-BLK	GRN-RED	LBBG
53	GG58453	MMM-GRN	GRN-RED	LBBG
54	GG58454	MMM-BLU	GRN-RED	LBBG

F	NH	-	NH	-	NH	-	NH	-
M	R	-	R	-	NH	-	R	-
M	LB	-	A	-	LB	-	LB	D
M	LB	-	A	-	LB	-	LB	-
F	R	-	-	-	-	-	-	-
M	NH	-	NH	-	NH	-	-	-
M	LB	-	A	-	A	-	A	-
M	NH	-	RON	-	NH	-	NH	-
F	NH	-	NH	-	NH	-	NH	-
F	LB	-	RON	-	LB	-	LB	-
F	NH	-	NH	-	-	-	NH	-
F	K	-	K	-	K	-	-	-
F	LB	-	A	-	NH	-	-	-
F	LB	-	LB	-	-	-	-	-
F	NP	-	NP	-	-	-	-	-
M	NP	-	NP	-	NP	-	NP	-
M	NP	-	NP	-	NP	-	-	-
M	K	-	NH	-	K	-	K	-
F	NP	-	A	-	-	-	NP	-
M	NK	-	NP	-	NP	-	NP	-
F	NP	-	NP	-	NP	-	NP	-
M	NP	-	-	-	-	-	NP	-
F	NP	-	NP	-	NP	-	NP	-
M	NP	-	NP	-	NP	-	NP	-
M	LB	-	A	-	A	-	LB	-
F	LB	-	LB	-	LB	-	LB	-
M	LB	-	LB	-	LB	-	LB	-
M	LB	-	A	-	LB	-	LB	-
F	NP	-	-	-	NP	-	-	-
F	NP	D	-	-	-	-	-	-
M	NP	-	-	-	-	-	-	-
F	K	-	-	-	K	-	-	-
F	K	-	K	-	K	-	K	-
M	K	-	K	-	K	-	K	-
M	K	-	K	-	K	-	K	-
M	LB	-	-	-	LB	-	LB	-
M	NP	-	NP	-	K	-	K	-
F	NP	-	A	-	LB	-	LB	-
F	K	-	A	-	A	-	LB	-
F	LB	-	-	-	-	-	NP	-
F	K	-	K	-	K	-	K	-
M	K	-	K	-	-	-	-	-
F	NP	-	-	-	NP	-	NP	-
F	NP	-	NP	-	NP	-	NP	-
M	NP	-	-	-	-	-	-	-
F	NP	-	NP	-	-	-	NP	-
F	NP	-	NP	-	NP	-	NP	-
F	LB	-	LB	-	LB	-	LB	-
F	LB	-	LB	-	LB	-	-	-
M	K	-	K	-	K	-	K	-
M	R	-	R	-	R	-	R	-
F	R	-	R	-	-	-	-	-
M	R	-	TAR	-	-	-	-	-
F	NP	-	NP	-	NP	-	-	-

55	GG58455	MMM-WHI	GRN-RED	LBBG	F	NP	-	NP	-	NP	-	NP	-
56	GG58456	MMM-RED	GRN-BLK	LBBG	M	NP	-	-	-	-	-	-	-
57	GG58457	MMM-BLK	GRN-BLK	LBBG	M	K	-	K	-	K	-	K	-
58	GG58458	MMM-GRN	GRN-BLK	LBBG	F	K	-	K	-	K	-	K	-
59	GG58459	MMM-BLU	GRN-BLK	LBBG	F	K	-	-	-	K	-	-	-
60	GG58460	MMM-WHI	GRN-BLK	LBBG	F	K	-	K	-	K	-	K	-
61	GG58461	MMM-RED	GRN-WHI	LBBG	F	R	-	R	-	NH	-	NH	-
62	GG58462	MMM-BLK	GRN-WHI	LBBG	F	R	-	R	-	R	-	R	-
63	GG58463	MMM-GRN	GRN-WHI	LBBG	F	R	-	R	-	R	-	R	-
64	GG58464	MMM-BLU	GRN-WHI	LBBG	M	NP	-	NP	-	NP	-	NP	-
65	GG58465	MMM-WHI	GRN-WHI	LBBG	F	NP	-	NP	-	NP	-	NP	-
66	GG58466	MMM-RED	RED-GRN	LBBG	M	NP	-	NP	-	NP	-	-	-
67	GG58467	MMM-BLK	RED-GRN	LBBG	F	R	-	R	-	R	-	-	-
68	GG58468	MMM-GRN	RED-GRN	LBBG	F	R	-	R	-	R	-	R	-
69	GG58469	MMM-BLU	RED-GRN	LBBG	F	R	-	-	-	NH	-	NH	-
70	GG58470	MMM-WHI	RED-GRN	LBBG	F	K	-	-	-	K	-	K	-
71	GG58471	MMM-RED	BLK-GRN	LBBG	F	K	-	K	-	K	-	K	-
72	GG58472	MMM-BLK	BLK-GRN	LBBG	M	K	-	K	-	K	-	K	-
73	GG58473	MMM-GRN	BLK-GRN	LBBG	M	NP	-	RON	-	NP	-	NP	-
74	GG58474	MMM-BLU	BLK-GRN	LBBG	M	R	-	R	-	-	-	NH	-
75	GG58475	MMM-WHI	BLK-GRN	LBBG	M	NP	-	NP	-	NP	-	NP	-
76	GG58476	MMM-RED	WHI-GRN	LBBG	M	R	-	NP	-	NP	-	NP	-
77	GG58477	MMM-BLK	WHI-GRN	LBBG	M	R	-	R	-	-	-	-	-
78	GG58470	MMM-GRN	WHI-GRN	LBBG	M	NP	-	NP	-	NP	-	-	-
79	GG58479	MMM-BLU	WHI-GRN	LBBG	M	K	-	AWY	-	K	-	-	-
80	GG58480	MMM-WHI	WHI-GRN	LBBG	F	NP	-	NP	-	NP	-	NP	-
81	GG58481	MMM-RED	BLK-BLK	LBBG	F	R	-	A	-	LB	-	-	-
82	GG58482	MMM-BLK	BLK-BLK	LBBG	M	R	-	R	-	NH	-	NH	-
83	GG58482	MMM-GRN	BLK-BLK	LBBG	M	NP	-	NP	-	NP	-	LB	-
84	GG58484	MMM-BLU	BLK-BLK	LBBG	M	NH	-	R	-	-	-	NH	-
85	GG58485	MMM-WHI	BLK-BLK	LBBG	F	NH	-	R	-	-	-	-	-
86	GG58586	MMM-RED	BLK-RED	LBBG	M	NH	-	NH	-	NH	-	NH	-
87	GG58487	MMM-BLK	BLK-RED	LBBG	M	NH	-	-	-	K	-	-	-
88	GG58488	MMM-GRN	BLK-RED	LBBG	F	K	-	K	-	K	-	-	-
89	GG58489	MMM-BLU	BLK-RED	LBBG	M	K	-	-	-	K	-	K	-
90	GG58490	MMM-WHI	BLK-RED	LBBG	F	NH	-	NH	-	-	-	-	-
91	GG58491	RED-MMM	BLK-GRN	LBBG	M	NH	-	NH	-	NH	-	NH	-
92	GG58492	BLK-MMM	BLK-GRN	LBBG	M	NH	-	NH	-	-	-	-	-
93	GG58493	GRN-MMM	BLK-GRN	LBBG	F	NH	-	NH	-	NH	-	NH	-
94	GG58494	BLU-MMM	BLK-GRN	LBBG	M	NH	-	-	-	-	-	-	-
95	GG58495	WHI-MMM	BLK-GRN	LBBG	M	NH	-	NH	-	NH	-	NH	-
96	GG58496	RED-MMM	BLK-BLU	LBBG	M	NH	-	NH	-	NH	-	NP	-
97	GG58497	BLK-MMM	BLK-BLU	LBBG	M	NH	-	NH	-	-	-	NH	-
98	GG58498	GRN-MMM	BLK-BLU	LBBG	M	NH	-	NH	-	NH	-	NH	-
99	GG58499	BLU-MMM	BLK-BLU	LBBG	M	NH	-	NH	-	NH	-	NH	-
100	GG58500	WHI-MMM	BLK-BLU	LBBG	M	K	-	K	-	K	D	-	-
101	GG58551	MMM-RED	BLK-WHI	LBBG	M	K	-	-	-	K	-	K	-
102	GG58552	MMM-BLK	BLK-WHI	LBBG	M	NH	D	-	-	-	-	-	-
103	GG58553	MMM-GRN	BLK-WHI	LBBG	F	NH	-	NH	-	R	-	-	-
104	GG58554	MMM-BLU	BLK-WHI	LBBG	M	NH	-	-	-	-	-	-	-
105	GG65528	MMM-RED	RED-RED	LBBG	M	-	-	LB	-	A	-	LB	-
106	GG65529	MMM-BLK	RED-RED	LBBG	M	-	-	LB	-	NP	-	-	-
107	GG07221	MMM-GRN	RED-RED	LBBG	M	-	-	LB	-	-	-	-	-
108	GG65530	MMM-BLU	RED-RED	LBBG	M	-	-	LB	-	LB	-	LB	-
110	GG65534	MMM-WHI	RED-RED	LBBG	F	-	-	LB	-	LB	-	LB	-
111	GG65535	MMM-RED	RED-BLK	LBBG	F	-	-	LB	-	LB	-	-	-
112	GG65536	MMM-BLK	RED-BLK	LBBG	F	-	-	NP	-	NP	-	NH	-
113	GG65537	MMM-GRN	RED-BLK	LBBG	F	-	-	NP	-	NP	-	NP	-
114	GG65538	MMM-BLU	RED-BLK	LBBG	F	-	-	NP	-	NH	-	NH	-
115	GG65540	MMM-WHI	RED-BLK	LBBG	M	-	-	NP	-	NP	-	-	-
116	GG65541	MMM-YEL	RED-BLK	LBBG	F	-	-	NP	-	-	-	-	-
117	GG65542	MMM-RED	RED-WHI	LBBG	M	-	-	NP	-	NP	-	-	-
118	GG65544	MMM-GRN	RED-WHI	LBBG	F	-	-	NP	-	NP	-	NP	-
119	GG65545	MMM-BLK	RED-WHI	LBBG	F	-	-	NP	-	NP	-	NP	-

120	GG65547	MMM-BLU	RED-WHI	LBBG	F	-	-	K	-	-	-	-
121	GG65548	MMM-WHI	RED-WHI	LBBG	M	-	-	K	-	-	-	-
122	GG65549	MMM-YEL	RED-WHI	LBBG	M	-	-	K	-	K	-	K
123	GG65550	MMM-RED	RED-YEL	LBBG	?	-	-	K	-	K	-	K
124	GG65551	MMM-BLK	RED-YEL	LBBG	F	-	-	K	-	K	-	-
125	GG65552	MMM-GRN	RED-YEL	LBBG	F	-	-	K	-	K	-	K
126	GG65553	MMM-BLU	RED-YEL	LBBG	F	-	-	K	-	-	-	-
127	GG65554	MMM-WHI	RED-YEL	LBBG	M	-	-	K	-	K	-	K
128	GG65555	MMM-YEL	RED-YEL	LBBG	M	-	-	NP	-	NP	D	-
129	GG65556	MMM-RED	WHI-RED	LBBG	F	-	-	NP	-	NP	-	NP
130	GG65557	MMM-BLK	WHI-RED	LBBG	M	-	-	NP	-	NP	-	NP
131	GG65558	MMM-GRN	WHI-RED	LBBG	M	-	-	NP	-	NP	-	NP
132	GG65559	MMM-BLU	WHI-RED	LBBG	M	-	-	K	-	-	-	-
133	GG65560	MMM-WHI	WHI-RED	LBBG	M	-	-	K	-	-	-	-
134	GG65561	MMM-BLK	WHI-BLK	LBBG	F	-	-	K	-	K	-	-
135	GG65562	MMM-GRN	WHI-BLK	LBBG	M	-	-	NP	-	NP	-	NP
136	GG65564	MMM-BLU	WHI-BLK	LBBG	F	-	-	NP	-	NP	-	NP
137	GG65565	MMM-WHI	WHI-BLK	LBBG	M	-	-	NP	-	NP	-	NP
138	GG65566	MMM-YEL	WHI-BLK	LBBG	F	-	-	NP	-	NP	-	NP
139	GG65568	MMM-RED	WHI-WHI	LBBG	F	-	-	NP	-	NP	-	NP
140	GG65569	MMM-BLK	WHI-WHI	LBBG	M	-	-	NP	-	NP	-	NP
141	GG65570	MMM-GRN	WHI-WHI	LBBG	M	-	-	R	-	R	-	-
142	GG65571	MMM-BLU	WHI-WHI	LBBG	F	-	-	R	-	-	-	-
143	GG65572	MMM-WHI	WHI-WHI	LBBG	F	-	-	R	-	NH	-	NH
143	GG65573	MMM-YEL	WHI-WHI	LBBG	F	-	-	R	-	R	-	R
145	GG65574	MMM-RED	WHI-YEL	LBBG	F	-	-	R	-	R	-	-
146	GG65575	MMM-BLK	WHI-YEL	LBBG	F	-	-	R	-	R	-	NH
147	GG65579	MMM-GRN	WHI-YEL	LBBG	M	-	-	R	-	R	-	R
148	GG65580	MMM-BLU	WHI-YEL	LBBG	F	-	-	R	-	R	-	R
149	GG65582	MMM-WHI	WHI-YEL	LBBG	M	-	-	R	-	R	-	-
150	GG65583	MMM-YEL	WHI-YEL	LBBG	F	-	-	R	-	R	-	-
151	GG65585	MMM-RED	BLK-YEL	LBBG	F	-	-	R	-	R	-	R
152	GG65586	MMM-BLK	BLK-YEL	LBBG	M	-	-	R	-	-	-	-
153	GG65587	MMM-GRN	BLK-YEL	LBBG	M	-	-	R	-	NH	-	NH
154	GG65588	MMM-BLU	BLK-YEL	LBBG	M	-	-	R	-	R	-	R
155	GG65589	MMM-WHI	BLK-YEL	LBBG	M	-	-	R	-	NH	-	NH
156	GG65590	MMM-YEL	BLK-YEL	LBBG	F	-	-	R	-	-	-	K
157	GG65592	MMM-RED	GRN-YEL	LBBG	M	-	-	R	-	NH	-	R
158	GG65594	MMM-BLK	GRN-YEL	LBBG	M	-	-	R	-	-	-	-
159	GG65595	MMM-GRN	GRN-YEL	LBBG	M	-	-	R	-	R	-	NH
160	GG65596	MMM-BLU	GRN-YEL	LBBG	M	-	-	R	-	R	-	NH
161	GG65597	MMM-WHI	GRN-YEL	LBBG	F	-	-	R	-	R	-	NH
162	GG65598	MMM-YEL	GRN-YEL	LBBG	F	-	-	R	-	NH	-	NH
163	GG65599	MMM-RED	BLU-YEL	LBBG	M	-	-	R	-	R	-	R
164	GG67208	MMM-BLK	BLU-YEL	LBBG	M	-	-	-	-	K	-	K
165	GG62709	MMM-GRN	BLU-YEL	LBBG	F	-	-	-	-	K	-	K
166	GG62710	MMM-BLU	BLU-YEL	LBBG	M	-	-	-	-	K	-	K
167	GG67211	MMM-WHI	BLU-YEL	LBBG	F	-	-	-	-	K	-	K
168	GG67212	MMM-YEL	BLU-YEL	LBBG	F	-	-	-	-	K	-	K
169	GG67213	MMM-RED	YEL-RED	LBBG	F	-	-	-	-	K	D	-
170	GG67214	MMM-BLK	YEL-RED	LBBG	F	-	-	-	-	K	-	K
171	GG67215	MMM-BLU	YEL-RED	LBBG	F	-	-	-	-	R	-	R
172	GG67216	MMM-GRN	YEL-RED	LBBG	F	-	-	-	-	K	-	R
173	GG67217	MMM-WHI	YEL-RED	LBBG	M	-	-	-	-	R	-	K
174	GG67219	MMM-YEL	YEL-RED	LBBG	F	-	-	-	-	R	-	K
175	GG67220	MMM-RED	YEL-BLK	LBBG	F	-	-	-	-	R	-	NP
176	GG67221	MMM-BLK	YEL-BLK	LBBG	F	-	-	-	-	R	-	R
177	GG67224	MMM-GRN	YEL-BLK	LBBG	F	-	-	-	-	R	-	SN
178	GG67226	MMM-BLU	YEL-BLK	LBBG	F	-	-	-	-	NH	-	NH
179	GG67228	MMM-WHI	YEL-BLK	LBBG	M	-	-	-	-	NH	-	NH
180	GG67229	MMM-YEL	YEL-BLK	LBBG	M	-	-	-	-	NH	-	NH
181	GG67231	MMM-RED	YEL-GRN	LBBG	M	-	-	-	-	R	-	R
182	GG67232	MMM-BLK	YEL-GRN	LBBG	F	-	-	-	-	NH	-	NH
183	GG67233	MMM-GRN	YEL-GRN	LBBG	F	-	-	-	-	NH	-	NH

Table 8. The numbers of herring and lesser black-backed gulls ringed on the Isle of May in 1992 prior to the 7 August.

	Herring gull	Lesser black-backed gull
North Ness	163	50
North Horn	24	8
Rona	240	109
West Rona	18	0
Altarstanes	27	0
Tarbet	151	4
Horse Hole	8	0
Tarbet to Low Light	30	10
North Plateau	157	190
Low Light	43	2
Burrian	93	17
Lochside	2	0
South Plateau	1	1
Colm's Hole	37	0
Kettle to Colm's Hole	146	64
Ardcarran	110	12
Lady's Bed and South Ness	95	34
South Horn	6	7
Maidens	108	0
Total	1449	508

Table 9. Proportion of juvenile gulls which had rings at the at the end of the breeding season in 1992.

Area	No. checked	% with rings
Maidens	32	81.3
Lady's Bed/South Ness/Ardcarran/ Pillow	107	68.2
Kirkhaven to Colm's Hole	109	67.0
Burrian	61	55.7
Tarbet to Low Light	106	68.9
Rona and North Ness	248	63.3
North Plateau	85	63.5
Altarstanes to Horse Hole	13	46.1
<hr/>		
Total	761	65.2
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Notes: No attempt was made to separate the two species
Checks made 5-6 August

Table 10. Whole island counts of shags, killiwakes, guillemots, razorbills and fulmars on the Isle of May, 1992.

	Shag (nests)	Kittiwake (nests)	Guillemot (birds)	Guillemot (pairs)	Razorbill (birds)	Razorbill (pairs)	Fulmar (sites)
A Rona (W)	336	440	230	151	72	56	9
B Altarstones - Peregrine's Nest	177	1488	3086	1960	620	410	31
C Greengates	36	1109	3973	2660	522	408	39
D South Plateau	88	1064	4855	3083	499	330	40
E Conerstone Pilgrims' Haven	45	988	3662	2469	592	487	20
F Pilgrims' Haven - Lady's Cave	126	550	616	415	127	109	22
G The Maidens - Inner	41	7	0	0	0	0	0
- Outer	79	66	200	150	10	6	4
H South Ness and Lady's Bed	195	195	316	237	53	46	6
I South Ness - Colm's Hole	140	58	0	0	0	0	8
J Colm's Hole - Low Light	257	382	202	135	43	29	29
K Tarbet - Low Light	107	351	372	251	43	28	25
L Rona (N and E)	7	3	0	0	0	0	0
Lochside (S)	0	103	0	0	0	0	33
Lochside (N)	0	112	0	0	0	0	0
1992 Total	1634	6916	17512	11511	2581	1909	266
1991 Total	1487	6535	16834	11440	1633	1425	250
% Change	+ 10	+ 6	+ 4	+ 1	+ 58	+ 34	+ 6

Notes (1) Counts were made 26 May - 4 June except for the back of Maidens (mid-June).

(2) Counts of auks converted to 'pairs' using a correction factor obtained from the Cornerstone study area.

(3) Counts made by J. Calladine, C. Wernham, N. Mann, J. Graves and M.P. Harris.

(4) Figures not to be used before consultation with M.P. Harris.

Table 11. Counts of occupied kittiwake nests in the non-random plots on 5 July 1992.

Plot	Nests 1992	% change 1991-92
1	30	+25
2L	63	-1
2R	47	-6
3	60	+15
4	186	+22
7+7b	123	+4
8,9,9 extra	64	-3
10	157	+18
<hr/>		
Total	730	+11
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Counts in both years were made by Dr S Wanless

Table 12. Counts of guillemots in monitoring plots on the Isle of May, 31 May to 18 June 1992.

Date	Chatter- stones	A	B	D	E	F	G	H	I	J	Rona	Corner- stone	C4		
													Old area	New area	Total
31 May	421	223	199	335	163	457	191	317	150	87	163	165	279	346	3217
2 June	413	213	216	285	152	461	212	349	141	86	156	178	257	333	3195
3 June	396	211	207	280	136	436	175	320	152	72	159	173	245	314	3031
5 June	420	203	201	295	141	449	154	348	138	77	179	171	250	323	3105
6 June	411	211	227	293	159	479	167	362	148	79	174	192	249	322	3224
10 June	432	222	214	275	152	365	157	311	142	87	193	164	235	309	3023
12 June	443	215	203	267	132	425	162	301	159	73	154	167	228	299	3000
13 June	421	213	190	283	142	458	160	354	157	73	182	168	256	346	3147
15 June	428	205	249	273	125	487	164	390	159	73	224	181	240	336	3294
18 June	455	233	220	268	138	492	166	351	167	85	200	178	235	304	3257
Mean	424	215	213	285	144	451	171	340	151	79	178	174	247	333	3149
S.D.	17	9	17	20	12	37	18	27	9	6	22	9	15	17	105

Note: The total uses C4(New).

Table 13. Summary of changes in the nubmers of individual guillemots in plots on the Isle of May, 1991-92.

Plot	1992 Mean	SE	% Change from 1991
Chatterstanes	424	5	- 4
A	215	3	0
B	213	5	- 3
D	285	6	- 7
E	144	4	- 3
F	451	12	+11
G	171	6	- 7
H	340	9	- 7
I	151	3	- 3
J	79	2	- 6
Rona	178	7	+ 7
Cornerstone	174	3	- 2
Colony 4 (new)	323	5	- 4
Total	3149	33	- 2

Notes: The means were compared using 't-tests'. In no instance was there a significant difference between the 1991 and 1992 counts.

Table 14. Counts of razorbills in 9 plots on the Isle of May, 31 May to 18 June 1992.

	Greenface	Peregrine's Nest	A	B	Greengates	Bishop Cove	Horse Hole	Cornerstone	C4 (Old)	C4 (New)	Total
May 31	103	72	50	43	168	83	3	59	26	64	645
June 2	100	59	29	42	123	63	3	45	19	54	518
3	69	42	35	22	122	62	2	43	18	47	444
5	94	59	30	26	123	40	2	49	16	42	465
6	82	54	38	34	151	53	2	53	23	48	515
10	77	54	41	35	140	57	2	52	20	62	520
12	96	54	44	43	138	82	4	55	26	70	586
13	123	67	57	34	146	84	4	62	23	67	644
15	111	60	43	29	167	71	2	55	20	64	602
18	90	66	47	39	159	70	3	50	29	63	587
Mean	95	58	41	35	144	67	3	52	22	58	553
SD	16	8	9	7	14	14	1	6	4	10	71

Note: Counts by M.P. Harris except for Peregrine's Nest and Bishop's Cove (J. Calladine)

Total uses C4 (New)

Table 15. Summary of changes in the number of individual razorbill in 9 plots on the Isle of May, 1991-2.

	1992 mean	SE	% change from 1991	Significance
Greenface	94.5	5.1	+7	n.s.
Peregrine's Nest	58.7	2.7	+1	n.s.
A	41.4	2.8	+14	n.s.
B	34.7	2.3	+9	n.s.
Greengates	143.7	5.6	+5	n.s.
Bishop Cove	66.5	4.5	-7	n.s.
Horse Hole	2.7	0.3	-16	n.s.
Cornerstone	52.3	1.9	+13	n.s.
C (New)	58.1	3.0	+10	n.s.
<hr/>				
Total	552.6	22.3	+5	n.s.
<hr/>				

Table 16. Weather conditions during seabird monitoring counts in 1992.

Date	Wind		Sea state	Cloud cover	Visibility
	Direction	Beaufort force			
31 May	SE	3	calm	fog	fog
2 June	SE	4	moderate	8/8	poor
3 June	SE	3	calm	fog	fog
5 June	NE	6	rough	8/8	excellent
6 June	NE	6	rough	8/8	moderate
10 June	SE	3	calm	fog	fog
12 June	NW	1	calm	0/8	good
13 June	NW	2	calm	1/8	good
15 June	NW	5	moderate	2/8	excellent
18 June	NW	4	moderate	5/8	excellent

Table 17. Details of oystercatcher pairs breeding in 1992.

Nest no.	Place	Date of laying	Clutch (eggs)	Brood (chicks)	Repeat laying	Fledged (young)	Adult Numbers
1	West Braes	1/5	3	3	mid/6	1	10
2	Mouse Knoll	(12/5)	2	0	by 6/6	0	68
3	Fuel Tanks	(18/5)	2+	0	-	0	81
4	Kettle	(18/5)	2+	0	10/6	0	91
5	Three Tarn	19/5	?	2	-	0	77
6	Silver Sands	late/5	?	0	-	0	95
7	North Horn (N)	20/5	3	0	4/6	0	103
8	Three Tarn	(16/5)	3	0	-	0	100
9	West Braes (top)	20/5	1+	0	-	0	101
10	North Plateau	19/5	4	0	-	0	110
11	Kettle (W)	?	?	0	?	0	Def.
12	North Plateau (N)	(20/5)	1+	2	-	0	88
13	Fuel Tanks	by 19/5	3	2	-	1	98
14	Lady's Bed wall	late/5	?	0	?	0	57
15	Ardcarran Gully	(20/5)	2+	0	yes	0	11
16	Gully Trap	23/5	3	2	-	1	82
17	Island Wreck	24/5	1+	1	-	1	37
18	Beacon	mid/5	2+	1	-	1	71
19	Rona/Tarbet	by 23/5	?	0	yes	0	84
20	Kettle (W)	early/5	?	0	-	0	99
21	Kettle (E)	20/5	1+	0	yes	0	48
22	North Horn (E)	(24/5)	2+	1	-	0	97
23	Gully Trap	27/5	1+	0	-	0	29
24	North Ness (W)	(26/5)	3	?	-	0	33
25	North Ness (mid)	(25/5)	3	0	-	0	109
27	Burrian	?when	1+	0	-	0	69
28	Ardcarran Gully (S)	end/5	2+	2	-	0	8
29	North Ness (mid)	June	?	?	-	0	UR
30	Kettle (top)	mid/June	2+	2	-	1	91
							79

Table 17 continued

31	Low Light-Tarbet	?	?	0	?	0	76	UR
32	Chapel	?	?	0	-	0	107	BTO
33	Helipad	?	?	0	-	0	61	64
34	North Horn (N)	?	?	0	-	0	25	44
35	North Plateau	?	?	0	-	0	27	42

Notes: Laying date in brackets indicated a calculated date based on hatching date or laying pattern.

Table 16. Weather conditions during seabird monitoring counts in 1992.

Date	Wind			Sea state	Cloud cover	Visibility
	Direction	Beaufort force				
31 May	SE	3		calm	fog	fog
2 June	SE	4		moderate	8/8	poor
3 June	SE	3		calm	fog	fog
5 June	NE	6		rough	8/8	excellent
6 June	NE	6		rough	8/8	moderate
10 June	SE	3		calm	fog	fog
12 June	NW	1		calm	0/8	good
13 June	NW	2		calm	1/8	good
15 June	NW	5		moderate	2/8	excellent
18 June	NW	4		moderate	5/8	excellent

Table 18. Details of colour-ringed oystercatchers on the Isle of May 1986 - 92.

NB or T = did not breed

DED = found dead

1, 2, 3 etc. = nest number that year

[illegible]

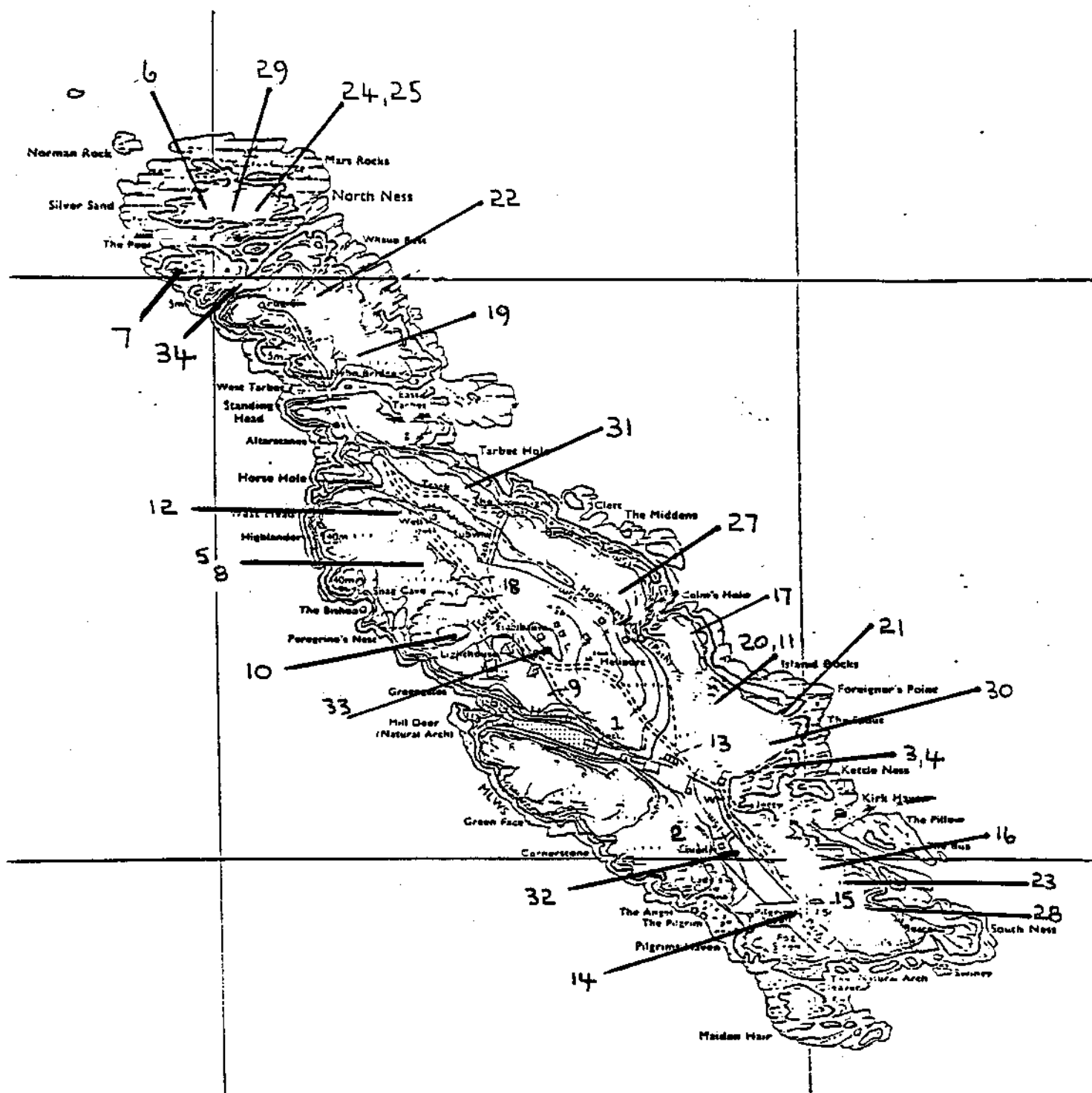
1	FR24897	ZZZ-BTO	YEL-TRI	OYC	F	15	1	12	1	1	1	2	1	7	1	6	-	7
2	FR24885	RED-TRI	RED-BTO	OYC	M	15	1	12	1	1	-	2	1	7	1	6	1	7
3	FV95991	TRI-YEL	WHI-BTO	OYC	M	2	-	7	-	?	-	9	1	9	-	11	1	3
4	FV95911	BLK-BTO	BLK-TRI	OYC	F	2	-	7	-	?	-	9	1	9	-	11	-	3
5	FR24886	BLU-TRI	ZZZ-BTO	OYC	M	14	-	T	-	T	-	12	-	14	-	20	-	32
6	FR24970	RED-TRI	YEL-BTO	OYC	M	7	-	4	-	NB	-	14	-	-	-	-	-	-
7	FR24893	ZZZ-ZZZ	ZZZ-BTO	OYC	M	27	-	28	-	24	-	20	-	19	-	19	-	16
8	FC22407	RED-BTO	GRN-TRI	OYC	F	27	-	28	-	24	-	20	1	19	-	19	-	16
9	FR24878	YEL-TRI	WHI-BTO	OYC	?	6	-	1	-	2	-	1	-	1	-	1	-	1
10	FR24867	YEL-TRI	YEL-BTO	OYC	F	6	-	1	-	2	-	1	-	1	-	1	-	1
11	FR24868	GRN-TRI	YEL-BTO	OYC	F	5	-	12	-	3	-	6	-	8	1	2	-	6
12	FR24864	DEF-ZZZ	TRI-BTO	OYC	M	5	1	12	1	3	1	6	1	8	1	2	1	6
13	FR24877	WHI-TRI	WHI-BTO	OYC	F	13	1	8	1	5	-	31	-	6	-	28	-	33
14	FV95910	BLK-BTO	WHI-TRI	OYC	M	34	-	20	-	NB	-	-	-	-	-	-	-	-
15	FV95912	BLU-BTO	GRN-TRI	OYC	F	34	-	20	-	17	-	21	-	33	-	22	-	22
16	FR24895	GRN-BTO	RED-TRI	OYC	F	14	1	2	1	-	-	-	-	-	-	-	-	-
17	FR24889	RED-TRI	BLU-BTO	OYC	M	11	-	23	-	4	-	10	-	12	-	-	-	-
18	FV95987	TRI-YEL	RED-BTO	OYC	M	-	-	19	-	-	-	-	-	-	-	-	-	-
19	FR24873	BLU-TRI	BLK-BTO	OYC	M	9	-	10	1	-	-	-	-	-	-	-	-	-
20	FR24871	YEL-TRI	BLK-BTO	OYC	F	7	-	4	-	-	-	-	-	-	-	-	-	-
21	FV95905	WHI-BTO	GRN-TRI	OYC	M	28	-	22	-	-	-	-	-	-	-	-	-	-
22	FR24879	BLK-TRI	WHI-BTO	OYC	F	1	-	3	-	-	-	-	-	-	-	-	-	-
23	FR24896	GRN-BTO	WHI-TRI	OYC	M	29	-	-	-	-	-	-	-	-	-	-	-	-
24	FR24875	BLK-TRI	YEL-BTO	OYC	F	8	-	-	-	-	-	-	-	-	-	-	-	-
25	FV95915	BLU-BTO	GRN-TRI	OYC	F	37	-	-	-	-	-	-	-	-	-	-	-	-
26	FR76189	TRI-YEL	YEL-BTO	OYC	M	(11	-	23	1	4	-	10	-	12	-	12	-	23
27	FR24900	YEL-BTO	YEL-TRI	OYC	M	30	-	11	1	-	1	16	-	32	-	27	-	34
28	FV95914	ZZZ-BTO	BLU-TRI	OYC	M	13	-	8	1	5	-	31	-	16	-	28	-	33
29	FR24872	BLK-TRI	BLK-BTO	OYC	M	10	-	15	-	7	-	27	-	13	-	14	-	19
30	FR24894	GRN-BTO	GRN-TRI	OYC	F	10	1	15	1	7	-	27	1	13	1	-	-	-
31	FR24874	GRN-TRI	BLK-BTO	OYC	F	9	-	10	-	8	-	13	-	04	-	3	-	-
32	FR24876	WHI-TRI	BLK-BTO	OYC	M	1	-	3	1	8	1	13	-	4	-	3	-	-
33	FV95903	TRI-WHI	BLK-BTO	OYC	M	23	-	16	-	11	-	18	-	27	-	15	-	20
34	FV95908	BLK-TRI	ZZZ-TRI	OYC	F	23	-	16	1	11	-	18	-	27	-	15	-	20
35	FA26971	TRI-BLK	YEL-BTO	OYC	M	3	-	6	1	12	-	7	-	11	-	7	-	2
36	FR24866	GRN-TRI	GRN-BTO	OYC	F	3	-	6	1	12	-	7	-	11	1	7	-	2
37	FR24881	GRN-TRI	WHI-BTO	OYC	M	24	-	9	-	14	-	5	-	2	-	8	-	4
38	FR24887	GRN-TRI	RED-BTO	OYC	F	24	-	9	-	14	-	5	-	2	-	8	-	4
39	FV95913	BLK-BTO	BLU-TRI	OYC	F	32	-	29	-	13	1	4	1	15	1	13	1	5
40	FR24865	WHI-TRI	GRN-BTO	OYC	M	4	1	29	1	13	1	-	-	-	-	-	-	-
41	FR24898	GRN-BTO	BLK-TRI	OYC	M	17	-	14	1	15	-	24	1	30	1	25	-	27
42	FV95906	WHI-BTO	ZZZ-TRI	OYC	F	16	-	21	-	16	-	-	1	-	-	27	-	34
43	FR24890	BLU-TRI	BLU-BTO	OYC	M	16	1	21	1	16	-	-	-	-	-	-	-	-
44	FR24891	GRN-TRI	BLU-BTO	OYC	F	22	-	17	-	18	-	27	-	24	-	16	-	13
45	FV95902	YEL-BTO	BLU-TRI	OYC	M	22	1	17	-	18	-	27	-	24	-	16	-	13
46	FR24869	WHI-TRI	YEL-BTO	OYC	M	8	-	24	-	19	1	15	-	17	-	29	-	11

F	29 -	24 -	19 -	15 -	17 -	23 -	8
F	-	19 -	20 -	25 -	25 -	24 -	18
M	18 1	26 1	21 -	32 -	22 1	17 -	15
F	18 1	26 1	21 1	32 -	22 -	17 -	15
F	? -	25 -	23 -	29 -	31 -	10 -	26
M	? -	25 -	23 -	29 -	31 -	- -	-
M	26 -	27 -	27 -	22 -	28 -	21 -	17
F	26 -	27 -	27 -	22 -	28 -	21 -	35
?	28 1	- -	28 -	- -	- -	- -	-
F	21 -	30 1	29 -	33 1	29 -	- 1	29
M	21 1	30 1	29 1	33 1	29 1	26 1	29
M	- -	13 1	6 1	8 1	5 1	4 1	28
F	- -	13 1	6 -	- -	- -	- -	-
F	30 1	- -	22 1	17 1	10 1	30 1	14
M	- -	- -	25 -	8 -	5 -	4 -	28
M	- -	- -	22 -	30 -	6 -	30 -	14
F	- -	- -	25 -	? -	- -	- -	-
F	- -	- -	- -	11 -	3 -	5 -	30
?	- -	- -	- -	17 -	10 -	NB	35
F	- -	- -	- -	14 -	20 1	NB	-
M	- -	(?) -	(?) -	21 1	33 -	NB	-
F	(?) -	(?) -	(?) -	3 -	21 -	18 -	9
F	- -	- -	- -	12 1	14 1	20 1	32
M	37 -	2 -	NB -	3 -	21 -	18 -	9
?	- -	- -	- -	4 -	15 -	13 -	5
M	- -	(19 -	(20 -	25 -	- -	- -	-
F	- -	- -	- -	16 -	- -	- -	-
M	- -	- -	- -	28 -	34 -	27 -	12
F	- -	- -	- -	28 -	34 -	YES	36
F	- -	- -	- -	19 1	26 1	NB 1	-
M	- -	- -	- -	19 -	26 1	10 1	26
M	- -	- -	- -	(?) -	23 -	9 -	31
F	- -	- -	(26 -	(26 -	23 -	9 -	24
M	- -	- -	- -	(11 -	3 -	5 -	-
?	- -	- -	- -	- -	25 -	24 -	18
M	- -	- -	- -	- -	- -	23 -	8
F	- -	- -	- -	- -	- -	14 -	19
F	- -	- -	- -	- -	- -	12 1	23
M	- -	- -	- -	- -	- -	22 1	-
?	- -	- -	- -	- -	- -	- -	10
F	- -	- -	- -	- -	- -	- -	11
?	- -	- -	- -	- -	- -	- -	25
?	- -	- -	- -	- -	- -	- -	25
F	- -	- -	- -	- -	- -	- -	21
M	- -	- -	- -	- -	- -	- -	24
?	- -	- -	- -	- -	- -	- -	-
?	- -	- -	- -	- -	- -	- -	-
?	- -	- -	- -	- -	- -	- -	-
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M	- -	- -	- -	- -	- -	- -	-
M	- -	- -	- -	- -	- -	- -	-
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?	- -	- -	- -	- -	- -	- -	-

Table 19. Population estimates of Isle of May seabirds 1980-92.

	Fulmar (sites)	Shag (nests)	Herring gull (nests)	Lesser black- backed gull (nests)	Kittiwake (nests)	Guillemot (birds)	Razorbill (birds)	Eider (nests)	Oystercatcher (pairs)
1980	143	1041	c.4000	(490)	n.c.	n.c.	n.c.	c.200	25
1981	n.c.	1163	c.2500	(470)	n.c.	16300	2086	309	28
1982	n.c.	1425	2300	c.550	n.c.	n.c.	n.c.	241	31
1983	101	1567	2578	1385	(6115)	22550	2220	545	30
1984	175	1639	2230	1488	6012	19005	2051	413	29
1985	156	1524	2165	1033	5510	18390	1825	535	33
1986	150	1310	1943	682	4801	19151	1864	557	34
1987	n.c.	1916	2117	534	6765	17546	1887	636	30
1988	n.c.	1290	1711	563	7638	16791	2128	650	35
1989	212	1703	1629	643	7564	18328	2613	680	36
1990	198	1386	1551	618	8129	16778	2368	841	36
1991	250	1487	1447	788	6535	16834	1633	592	32
1992	266	1634	1462	751	6916	17512	2581	810	34

MAP 1. Oystercatcher pairs in 1992



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