BREEDING SUCCESS OF COMMON GULLS *LARUS CANUS* IN WEST SCOTLAND
I. OBSERVATIONS AT A SINGLE COLONY

BROEDSUCCES VAN STORMMEEUWEN IN WEST-SCHOTLAND
I. WAARNEMINGEN OP EEN ENKELE KOLONIE

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A colony of c. 100 pairs of Common Gulls Larus canus *breeding on a 12 ha island 250 m off the coast of west Scotland was studied in the years 1988-95. Laying and hatching dates varied significantly between years. Length of incubation varied little, the annual mean always lying between 24.2 and 25.3 days. In 1988-90, mean clutch size was 2.4, 2.8 and 2.5; productivity (young fledged/pair laying) was 0.48, 0.74 and 0.27; and 34%, 47% and 23% of pairs fledged young. Of these successful pairs, the percentages fledging one, two and three young were 61%, 34% and 5% in 1988; 50%, 42% and 8% in 1989; and 83%, 17% and 0% in 1990. In 1988, the 18% of the colony that laid before 11 May fledged 1.09 young/pair; the 48% that laid in the next week fledged 0.48 young/pair; the 20% that laid in the subsequent week fledged 0.28 young/pair; and the 14% that laid thereafter fledged no young. In 1988-90, no or almost no young fledged from clutches completed after 20 May. In 1988, nests within 1 m of dense vegetation (usually* Juncus*) hatched and fledged more successfully than those further from dense vegetation. Breeding success was reduced by Peregrines* Falco peregrinus*, Herring Gulls* Larus argentatus *and American Mink* Mustela vison*. In 1988, Peregrines took 20% of large unfledged young, and nests within 55 m of a Herring Gull nest hatched and fledged less successfully than those further from Herring Gull nests. Earlier breeders tended to nest further from Herring Gull nests, and closer to vegetation, than did later breeders. Predation by American Mink, unrecorded on this island in 1980-89, was first recorded late in the 1990 breeding season. In 1991 and 1992, mink were established on the island and for the first time on record no Common Gulls fledged there. The study site was abandoned by Common Gulls in 1993-97 (although some bred elsewhere on the island).*

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INTRODUCTION

Perhaps because of its unexceptional habits and prosaic English name, the Common Gull *Larus canus* rarely excites the enthusiasm of ornithologists. Lowe (1915) wrote: 'The Common Gull is not a particularly interesting example of the genus. It does nothing to relieve the apparently humdrum monotony of an ordinary gull's life.' Whatever the reason, there have been few determinations of the

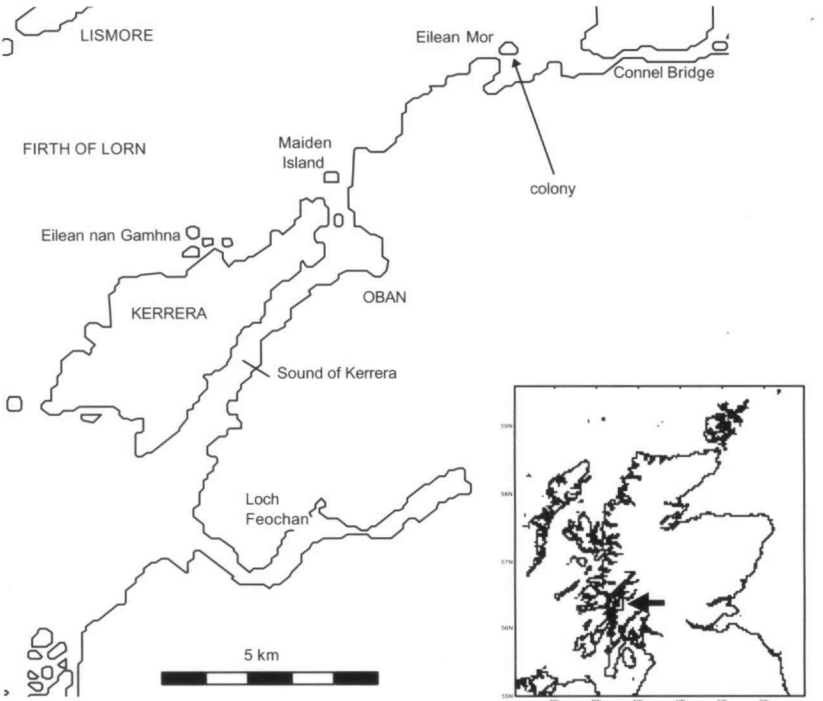

Figure 1. Map showing location of Eilean Mor and of the Common Gull colony. Detailed map of the colony is given in Fig. 4.

Figuur 1. Kaart met de ligging van Eilean Mor ten noorden van Oban aan de Schotse westkust en de ligging van de stormmeeuwenkolonie. Een gedetailleerde kaart van de kolonie is in Fig. 4 gegeven.

breeding success of this species, either in continental Europe or in the British Isles (see Discussion). This study in west Scotland records the breeding success of Common Gulls at one colony over several years and identifies some adverse factors. A second paper (Craik 2000) records Common Gull productivity in less detail at a number of colonies over several years.

METHODS

The study was made on Eilean Mor near Oban, Scotland (Fig. 1), an island of *c.* 12 ha lying *c.* 250 m from the nearest mainland. Common Gulls breeding on the island were divided naturally into four or five (depending on year) colonies, separated by 20-300 m of shore, tidal channel or moorland. During the study, each colony held

c. 20-100 pairs. Most of the work was undertaken at the largest of these colonies ('the colony'). Breeding success (numbers nesting, hatching and fledging) was recorded in the five years 1988-92. Hatching dates of all clutches that hatched in the colony were recorded only in 1988-90 (since few hatched and none fledged in 1991-92). For reasons given below, laying dates were recorded only in 1993-95. Chi-square tests were applied to breeding data, using Yates' correction where appropriate (Fowler & Cohen 1986).

Visits were made at intervals of 2-3 days from early in incubation to shortly before the first young fledged (*c.* 10 May - 24 June). All nests with one or more eggs were numbered and the clutch size at each visit was recorded.

All chicks in the study area were ringed soon after hatching when they were still assignable to nests; after about three days they scatter increasingly widely. On subsequent visits, vegetation was searched and the ring numbers of all chicks found were recorded. This continued until chicks were *c.* 20-25 days old, when they became so mobile that they left the colony area on the approach of investigators and recording the presence of individual chicks became impossible. Chicks that were found dead were aged by their ring number. Those that survived 11 or more days and were not subsequently found dead were assumed to have fledged.

Productivity of the colony was defined as number of chicks fledged/number of clutches (Walsh *et al.* 1995b). The remains of adults and larger chicks killed by predators were collected. The predator was usually identifiable as a raptor ('V'-marks in sternum, windblown spread of many plucked contour feathers, remiges and rectrices not usually plucked, head and legs often detached) or as American Mink *Mustela vison* ('mink'; paired tooth marks 10 mm apart on eggs, eggshell, back of head or neck, prey often intact and cached in vegetation, little or no plucking; see Craik (1995) for further details).

Visits in 1988-92 did not begin until the second week in May each year and so missed exact laying dates of some early clutches. Laying dates were obtained over the whole laying period (late April to early June) in 1993-95 by visiting other Common Gull colonies on the island every 2-3 days. In 1988-94, the timing of visits allowed many exact determinations to be made of the dates of clutch completion and also of hatching if this was seen (but which was assumed to be one day later if egg-chipping was in progress). For these clutches, the incubation period was defined as the difference between these two dates. For other clutches, an accuracy of ±1 day in each date resulted in an unacceptable ±2 days in the difference, so these were not used in estimating the duration of the incubation period.

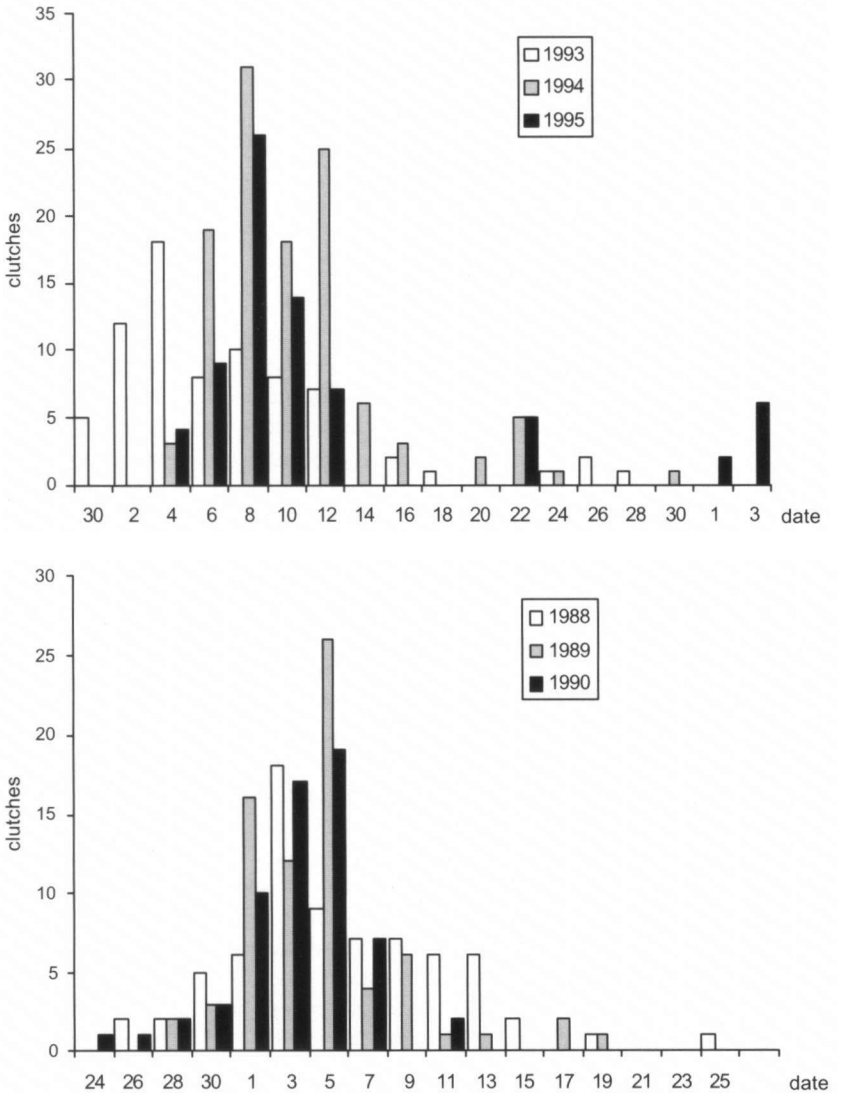

Figure 2. Dates of first egg of all clutches laid 30 April-3 June 1993-95 (top).
Figuur 2. Datum eerste ei van Stormmeeuwen 30 april- 3 juni 1993-95 (boven).

Figure 3. Hatching dates of all clutches that hatched at the colony, 24 May-26 June 1988-90.
Figuur 3. Uitkomstdata van alle succescolle legsels, 24 mei-26 juni 1988-90.

RESULTS

There was highly significant variation between years in dates of laying (Fig. 2; with date classes as shown but with 30 April-4 May combined and 14 May-4 June combined in order to avoid low expected frequencies, $\chi^2_{12} = 84.7$, $P < 0.001$). Fig. 2 shows that this was largely due to earlier laying in 1993, the reasons for which are unknown.

There was significant variation between years in dates of hatching (Fig. 3; with date classes as shown but with 24-31 May - the few earliest -combined and 9-26 June - the few latest - combined in order to avoid low expected frequencies, $\chi^2_{10} = 33.4$, $P < 0.001$). Fig. 3 shows that this was partly due to an earlier median date of hatching in 1988, again for unknown reasons. The incubation period in five different years, estimated from the minority of clutches throughout the study for which dates of clutch completion and dates of hatching were both accurately known, is shown in Table 1. As would be expected, the mean incubation period was very similar from year to year, always falling within the interval 24.2 to 25.3 days.

Mean clutch size was 2.4, 2.8 and 2.5 in 1988-90 (Table 2). This is based on the maximum clutch recorded at each nest, so that effects of egg predation are minimised. The extent to which egg removal by predators, including humans, may have contributed to this variation is difficult to assess. Hatching success and productivity are also given in Table 2. In the years 1988-90, 59%, 72% and 62% of clutches hatched one or more eggs, and 51%, 65% and 53% of eggs hatched.

Estimates of productivity in the three years were 0.48, 0.74 and 0.27 young fledged/pair. The proportions of pairs that fledged one or more young were 41/122 (34%), 48/103 (47%) and 23/100 (23%). Thus, in all three years a majority of pairs failed to fledge any young. Very few pairs fledged three young. The percentages of successful pairs that fledged one, two and three young were: 61%, 34% and 5% in 1988; 50%, 42% and 8% in 1989, and 83%, 17% and 0% in 1990.

In 1988, both hatching and fledging success were greatest for clutches completed by 10 May but both declined sharply thereafter (Table 3). No chicks hatched from clutches completed after 31 May, and no young fledged from clutches completed after 24 May. Very similar results were obtained in 1989 and 1990 (Table 4). Overall, no or almost no young fledged from clutches completed after about 20 May.

Fig. 4 shows the location of all the Common Gull clutches at the colony in 1988; it also indicates which of these were successful (fledging one or more young). One pair of Herring Gulls nested within the Common Gull colony, and another at its edge. There were no other Herring Gull territories within 500 m. In this area Herring Gulls return to their territories in February, whereas Common

Table 1. Mean incubation period of Common Gulls (date of clutch completion to date of hatching in those clutches for which both known).
Tabel 1. Gemiddelde broedperiode van Stormmeeuwen (datum van volledig legsel tot de datum van uitkomst indien beide data bekend).

Year	1988	1989	1990	1993	1994
Mean (days)	24.8	24.4	25.3	24.2	24.7
SD	1.55	0.84	1.32	1.32	0.52
No. of clutches	28	31	29	10	6

Table 2. Productivity at Eilean Mor Common Gull colony. nd= not measured
Tabel 2. Broedsucces op de stormmeeuwkolonie van Eilean Mor. nd= geen gegevens.

	1988	1989	1990	1991
No. of clutches (A)	122	103	100	64
Clutches hatching one or more eggs	72	74	62	nd
No. of eggs laid (B)	294	292	248	nd
No. of eggs hatched	151	189	131	nd
Clutch size (B/A)	2.4	2.8	2.5	nd
Chicks alive when last seen:				
up to 10 days old	33	102	80	0
11-20 days old (C)	34	46	9	0
21-30 days old (D)	25	30	18	0
Young fledged (C+D)	59	76	27	0
Productivity (C+D)/A	0.48	0.74	0.27	0.00
Fledged 1 or more young	41	48	23	0
Fledged 3 young	2	4	0	0
Fledged 2 young	14	20	4	0
Fledged 1 young	25	24	19	0
Fledged 0 young	81	55	77	64

Gulls do so in early April (personal observation). However, the time of return of these two Herring Gull pairs was not noted.

Table 5 shows the relation between hatching and fledging success of Common Gulls and distance from a Herring Gull nest. As the two Herring Gull nests were 110 m apart, Common Gull nests were categorised as near (< 55m) or not near (> 55 m) a Herring Gull nest. There was a significant association between failure to hatch any young and proximity of a Herring Gull nest ($\chi^2_1 = 7.6$, $P < 0.01$). There was also a highly significant association between failure to fledge any young and proximity to a Herring Gull nest ($\chi^2_1 = 11.9$, $P < 0.001$). The 61 nests within 55 m of a Herring Gull nest fledged 17 young (50 x 0, 5 x 1, 6 x 2), and the

Table 3. Breeding success of Common Gulls in relation to time of laying.
Tabel 3. Broedsucces van Stormmeeuwen in relatie tot de legdatum.

(a) Hatching success *Uitkomstsucces*

Date of last egg of clutch	No. of pairs	No. pairs hatching young	No. of young hatched	No. hatched young per pair laying
4-10 May	22	19	46	2.09
11-17 May	58	38	75	1.29
18-24 May	25	14	28	1.12
25-31 May	7	1	2	0.29
1-7 June	5	0	0	0.00
8-15 June	5	0	0	0.00
Totals	122	72	151	

(b) Fledging success *Uitvliegsucces*

Date of last egg of clutch	No. of pairs	No. pairs fledging young	No. of young fledged	No. fledged per pair laying
4-10 May	22	16	24	1.09
11-17 May	58	19	28	0.48
18-24 May	25	6	7	0.28
25-31 May	7	0	0	0.00
1-7 June	5	0	0	0.00
8-15 June	5	0	0	0.00
Totals	122	41	59	

61 nests beyond 55 m fledged 42 young (31 x 0, 20 x 1, 8 x 2, 2 x 3). Thus, productivity was in the ratio 17:42.

Common Gull nests were classified as 'sheltered' (within 1 m of dense vegetation of suitable height in which chicks could hide, usually a patch of *Juncus*) or 'exposed' (1 m distant, or more, from such vegetation). Intermediate cases were designated 'partly sheltered' (in a rock crevice; or within 1 m of vegetation in which a chick could not hide undetected). The breeding outcome of nests in these three categories is given in Table 6. There was a significant association between hatching success and proximity of cover ($\chi^2_2 = 7.54$, $P < 0.05$). There was also a signification association between fledging success and proximity of cover ($\chi^2_2 = 6.43$, $P < 0.05$).

The above findings suggest that earlier breeders might have selected breeding sites that were (a) further from Herring Gulls and (b) closer to vegetation. This was investigated further:

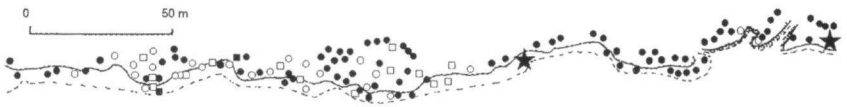

Figure 4. Map of part of the shoreline of the island Eilean Mor showing location of all Common Gull nests with one or more eggs at the colony in 1988. Solid circles, open squares and solid squares are respectively nests from which no (n = 81), one (n = 25), two (n = 14) and three (n = 2) young fledged. The continuous line indicates the approximate border between vegetation (mainly sheep-grazed grass and Juncus *patches) and supra-tidal rocks. The broken line is the approximate limit of high spring tides. Hatched rows are small cliffs (1-4 m high). The two stars show the positions of Herring Gull nests.*

Figuur 4. Kaart van een gedeelte van de kust van Eilean Mor met de precieze ligging van stormmeeuwennesten met tenminste één ei in 1988. Kleine stippen, cirkels, open vierkantjes en gesloten vierkantjes staan voor nesten met geen (n= 81), één (25), twee (14) en drie (2) uitgevlogen jongen. De gesloten lijn geeft de grens aan tussen begroeid terrein en kaal rotsgebied langs de kust. De stippellijn geeft het bereik van springtij weer. Lage kliffen (1-4m hoog) zijn door arcering weergegeven. De twee sterren geven de ligging van zilvermeeuwennesten weer.

(a) the nests in each week class in Table 3 were classified as > 55 m and < 55 m from a Herring Gull nest, giving the results in Table 7. These show that early breeders tended to nest further from Herring Gull nests than late breeders (χ^2_3 = 8.4, P < 0.05); and

(b) the nests in each week class in Table 3 were grouped into the three vegetation classes of Table 6, giving the results in Table 8. These show that early breeders tended to nest closer to vegetation than late breeders (χ^2_6 = 19, P < 0.01).

As shown in Table 2, a high proportion of chicks were not seen again soon after hatching, and were presumably killed in a manner that left no remains, such as being eaten whole or carried off intact. Predation by large gulls (both Herring and Great Black-backed Gulls *L. marinus* nested on the island), and possibly by adult Common Gulls, could not be quantified but was likely to have been important. Its occurrence was confirmed by the finding of four ringed leg bones of Common Gull chicks from the colony in gull pellets at nearby Herring Gull nests and territories.
Prey remains indicated that raptors killed adult Common Gulls in all three years, and large chicks particularly in 1988 (Table 9). Peregrines *Falco peregrinus* were seen killing both adults and chicks at the colony, and the prey remains suggested that this was always the species involved. In 1988, the number of large young (15) killed at the colony in this way showed that raptor predation lowered fledging

numbers by at least 20% [15/(59+15)], assuming the victims would otherwise have fledged. There was no evidence on the island of the presence of rats *Rattus* spp.

A high tide is known to have removed two Common Gull clutches; three or four other nest sites were inundated by high tides after hatching, the fate of the chicks being unknown.

As disturbance by the investigators every few days might have contributed to the low productivity in 1988-90 (Table 2), visits were made less frequently in 1991 (on 13, 16, 22, 28 May and 3, 14 and 26 June). However, productivity of the whole island declined to zero in 1991, not only of the 206 pairs of Common Gulls but also of Herring Gulls, Arctic Terns *Sterna paradisaea* and Eiders *Somateria mollissima*. Eilean Mor was visited for ringing several times every year during 1980-90. Predation by mink was not observed there until the end of the 1990 breeding season, when at least three large Common Gull chicks were killed by this alien predator. The year 1991 was the first in which mink are known to have been present in the colony from near the start of egg laying, and the first year in which mink bred on the island. In 1991, 52 pairs of Common Gulls bred in the colony; 27 small to medium-sized chicks were counted there on 14 June but all had perished by 26 June.

In 1992, 32 Common Gull nests were found at this colony on 11 May; all but five were empty. All were empty on 14 May. Cached eggs and punctured eggshells indicated predation by mink. A male mink was trapped near the centre of the colony on 14 May and a breeding female 500 m away on the island three days later. No further laying occurred.

The study colony site was unoccupied from 1993 to 1997, but smaller colonies of Common Gulls persisted elsewhere on the island. As this colony dwindled in size and was eventually deserted from 1991-93, a new colony of Common Gulls was founded 700 m away on the shore of the adjacent mainland. These were almost certainly the same birds (although there is no ringing or similar evidence). In 1992, this new site held *c.* 70-100 pairs and *c.* 40-50 large young fledged. About 50 pairs bred there in 1993 but all eggs and young were removed (the predator was not identified with certainty). Very few bred there in 1994 and this mainland site was unoccupied in 1995-97.

DISCUSSION

A notable finding of this work was the pronounced advantage of early breeding (Table 3). In 1988, the 18% of the colony that laid before 11 May exhibited twice the productivity of those laying in the next week and almost four times that of those laying in the following week; thereafter productivity fell to zero. This phenomenon has been described in other gull species (e.g. Hunt & Hunt 1976). Two important environmental influences on breeding success were distance from vegetation and

Table 4. Productivity (number of fledged young per number of pairs) of early (clutches begun before 20 May) and late (clutches begun after 20 May) nesting Common Gulls.

Tabel 4. Jongenproductie (uitgevlogen jongen/aantal paren) van vroege legsels (aanvang <20 mei) en late legsels (>20 mei) bij Stormmeeuwen.

Year	Before 20 May	After 20 May
1988	57/99	2/23
1989	76/90	0/13
1990	26/73	1/27

Table 5. Effect of distance from Herring Gull nest on outcome of Common Gull nests. Numbers of Common Gull nests are shown.

Tabel 5. Effect van de afstand tot nestelende Zilvermeeuwen op het broedsucces van Stormmeeuwen (aantal nesten).

	Nearest Herring Gull nest	
	withing 55m	beyond 55m
At least one hatched	28	44
None hatched	33	17
At least one fledged	11	30
None fledged	50	31

Table 6. Effect of distance from vegetation on outcome of Common Gull nests. Numbers of nests are shown. See text for definitions of 'sheltered', 'partly sheltered' and 'exposed' nests.

Tabel 6. Afstand tot de begroeide kustgedeelten en het uitkomen van stormmeeuweieren (aantal nesten). Zie tekst voor de kwalificaties 'sheltered' (beschut), 'partly sheltered' (gedeeltelijk beschut) en 'exposed' (geëxposeerd).

Hatching	Sheltered	Partly sheltered	Exposed
At least one hatched	26	18	28
None hatched	8	22	20
Total	34	40	48
Fledging	**Sheltered**	**Partly sheltered**	**Exposed**
At least one fledged	17	9	15
None fledged	17	31	33
Total	34	40	48

Table 7. Relation between Common Gull time of laying and distance from Herring Gull nests. Numbers of clutches are shown.
Tabel 7. Verband tussen legdatum van Stormmeeuwen (aantal legsels) en de afstand tot nestelende Zilvermeeuwen.

Date clutch completed	Nearest Herring Gull nest	
	within 55 m	beyond 55 m
4-10 May	6	16
11-17 May	32	26
18-24 May	11	14
25 May onwards	12	5

Table 8. Relation between time of laying and distance from vegetation. Numbers of clutches are shown. See text for definitions of 'sheltered', 'partly sheltered' and 'exposed' nests.
Tabel 8. Verband tussen de legdatum en de afstand tot begroeide kustgedeelten (aantal legsels). Zie tekst voor de kwalificaties 'sheltered' (beschut), 'partly sheltered' (gedeeltelijk beschut) en 'exposed' (geëxposeerd).

Date clutch completed	Sheltered	Partly sheltered	Exposed
4-10 May	8	10	4
11-17 May	11	16	31
18-24 May	13	6	6
25 May onwards	2	8	7

Table 9. Numbers of Common Gull chicks and adults found dead (nd = not counted).
Tabel 9. Aantal doodgevonden Stormmeeuwen (kuikens en volwassen vogels; nd = geen tellingen).

	1988	1989	1990	1991
Small chicks (0-10 days)	24	11	19	nd
Large chicks intact	20	0	0	nd
Large chicks killed by peregrine	15	0	2	nd
Large chicks killed by mink	0	0	3	nd
Adults killed by peregrine	4	4	6	7
Adults killed by mink	0	0	3	1

distance from Herring Gull nests. These findings were partly explained by showing that early breeders tended to nest closer to vegetation and further from Herring Gull nests. These were probably older, more experienced birds.

In order to discover the fates of individual chicks and obtain results such as those in Tables 1-9, it is necessary to make visits every few days. The effects of

such disturbance on breeding success are not easy to assess. However, the low productivity observed in three successive years (0.48, 0.74 and 0.27 young/pair: Table 2) are within the range of the only two values, 0.2 and 1.8, reported for this species in Cramp & Simmons (1983), and within the similar range of 0.0-2.0 reported in national summaries for Britain and Ireland for 1993-96 (Walsh *et al.* 1995a; Thompson *et al.* 1996, 1997). Moreover, similarly low results were obtained at other colonies in the study area that were disturbed for recording only twice each season, once to count clutches and once to count large young. In particular, low non-zero productivity was recorded at other Common Gull colonies regularly attacked by Peregrines and those on the edge of Herring Gull colonies (Craik 2000).

Egg and chick remains showed that Peregrine, Herring Gull and mink were predators at this colony. In contrast to predation by gulls and raptors, predation by mink was followed by whole-colony breeding failure at this colony both in 1991 and in 1992, and the colony site was abandoned in subsequent years. These events and other whole-colony breeding failures of this species caused by mink in west Scotland (Craik 1995, 1997) are consistent with the view that Common Gulls have evolved the ability to coexist with native predators but are unadapted to this introduced predator and unable to breed successfully in its presence. Others have reported on factors affecting breeding success of Common Gulls in Scandinavia. Bergman (1986) recorded that American Mink and larger gulls reduced breeding success by over 80%, leading to decrease in population size. Kilpi (1995) identified American Mink and Herring Gulls as the main causes of breeding failure and recorded an associated population decline of one third.

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SAMENVATTING

Het broedsucces werd onderzocht in een kolonie Stormmeeuwen in de buurt van Oban (West Schotland) tussen 1988 en 1995. De kolonie was gevestigd op Eilena Mor, een 12 ha groot eilandje op ongeveer 250 uit de kust van het vasteland (Fig. 1). De eileg- en uitkomstdata verschilden aanzienlijk van jaar tot jaar, maar de broedduur was steeds ongeveer hetzelfde met een gemiddelde van 24.2 tot 25.3 dagen. In 1988-90 was de gemiddelde legselgrootte 2.4, 2.5 en 2.8, de jongenproductie (jongen/leggende paren) bedroeg 0.48, 0.74 en 0.27 (34%, 47% en 23% van de paren hadden uitvliegende jongen). Van deze succesvolle paren kreeg in 1988 61% één enkel jong groot. Twee jongen werden grootgebracht door 34% van de succesvolle broedvogels, 5% kreeg drie jongen.. Voor 1989 en 1990 bedroegen deze percentages respectievelijk 50% (1), 42% (2), 8% (3) en 83% (1), 17% (2) en 0% (3). In 1988 had 18% van alle broedparen voor 11 mei eieren gelegd en het uitvliegsucces van deze 'vroege' legsels bedroeg 1.09 jongen per paar; de 48% die een week later met de leg waren begonnen kreeg 0.48 jongen per paar groot, 20% die nog een week later met de eileg was begonnen kreeg 0.28 jongen per paar groot en de 14% die nog later met de eileg begon kreeg in het geheel geen jongen groot.

Tussen 1988 en 1990 vlogen er vrijwel geen jongen uit van legsels die na 20 mei gecompleteerd waren. In 1988 kon worden vastgesteld dat de meest succesvolle legsels zich in rijkelijk begroeide kustgebieden bevonden, terwijl broedpogingen op kaal terrein dikwijls geen resultaat opleverenden. Belangrijke predatoren in het gebied waren Slechtvalken Falco peregrinus *(20% van de grote jongen in 1988), Zilvermeeuwen* Larus argentatus *en de Amerikaanse Nerts* Mustela vison. *Nesten op minder dan 55m van nestelende Zilvermeeuwen waren aanmerkelijk minder vaak succesvol dan nesten van Stormmeeuwen op grotere afstand. Vroege broedvogels nestelden steevast op grote afstand van Zilvermeeuwen, dicht bij ruige vegetatie, terwijl latere vestigingen (noodgedwongen) vaak in de buurt van deze grotere meeuwensoort op kaal terrein plaatsvonden. Predatie door Amerikaanse Nertsen vond op het eiland voor het eerst plaats in 1990. In de twee daaropvolgende jaren vestigde dit roofdier zich definitief op Eilean Mor en kwamen er prompt geen jonge Stormmeeuwen meer groot. De broedplaats in het studiegebied werd integraal verlaten in 1993-97, ofschoon er elders op het eiland nog wel Stormmeeuwen tot broeden kwamen.*

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