

BREEDING COMMON GULLS *LARUS CANUS* IN
THE NETHERLANDS, 1900-96
STORMMEEUWEN ALS BROEDVOGEL IN NEDERLAND,
1900-96

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In this paper, the population development of the Common Gull *Larus canus* in The Netherlands in four areas (Wadden Sea area, mainland North Sea coast of Noord- and Zuid-Holland, the Delta area, and the interior) is discussed. Common Gulls first nested in 1908, although nesting might have taken place during the previous century. Numbers remained low during the first decades. In 1963, just over 1000 pairs nested in the country, mainly in the western Wadden Sea area and in northern Noord-Holland. After the late 1960s, numbers increased sharply, especially in the Schoorl colony in Noord-Holland, where in 1985 52% of the national population nested. After Red Foxes *Vulpes vulpes* re-appeared in Noord-Holland, both the number of breeding gulls and their breeding success decreased. In the dune area of Zuid-Holland, the number of breeding gulls decreased after hunting of Red Foxes was stopped. Common Gulls then dispersed and formed several small colonies, among which colonies located on roofs in towns. At the same time, numbers of breeding Common Gulls increased in the Wadden Sea and Delta areas.

INTRODUCTION

Common Gulls *Larus canus* breed over a large part of the northern Palearctic and Nearctic. In Europe, largest numbers are found in Fenno-Scandinavia, around the southern Baltic and in the United Kingdom. The species has been identified as one of the few European gull species in need of conservation (Tasker 1994), even though numbers have increased dramatically, especially during the second half of the 20th century. Common Gulls typically nest in small colonies (Burger & Gochfeld 1996), but in Europe some exceptionally large colonies are known from Scotland, Germany, Denmark (Tasker 1994) and The Netherlands (e.g. Woutersen 1994). The European population has recently been estimated at 524,000 pairs (Bourne & Whilde 1997). In The Netherlands turbulent changes in breeding numbers took place during the 1960s and 1970s

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(Braaksma 1964; Spaans 1980). After 1980, further spectacular population changes occurred, but these have only been reviewed regionally. In this paper, a comprehensive overview of population development is presented and some explanations for the observed trends in numbers and colony distribution are discussed.

METHODS

Data for this paper are based on the coastal breeding bird database compiled by the Rijksinstituut voor Kust en Zee (RIKZ) and SOVON Vogelonderzoek Nederland, covering the period 1900-92 (Arts 1993). From 1993 onwards, the data were supplied by SOVON. If no data were available for colonies in some years, while it was obvious that Common Gulls nested there during this period (especially the case before 1970), the number of breeding pairs was interpolated.

For this paper, data are arranged to four regions (see map in Spaans 1998; page 122 of this issue): (1) the Wadden Sea area (Wadden Sea islands and the Wadden Sea coast of the provinces of Groningen, Friesland and Noord-Holland); (2) the mainland North Sea coast of Noord-Holland and Zuid-Holland; (3) the Delta area, including the islands of Zuid-Holland and Zeeland; and (4) the interior, also including the coast of the IJsselmeer.

RESULTS

Breeding in the 19th century There are several authors who mention breeding of Common Gulls in The Netherlands during the 19th century. Schlegel (1853) says: "Breeding in the dunes. Resident. Albarda (1897) "heard of a small colony on the island of Texel". Blaauw (1893) provides more precise information, but later authors do not cite these data for unknown reasons. Blaauw (1893) reports that Common Gulls breed on the Wadden Sea islands "... from where I often got eggs and young birds." It is strange, however, that breeding on Texel is not mentioned by Drijver (1934). Moreover, there are no eggs or chicks present in the collections of the National Museum of Natural History (Naturalis) in Leiden and the Zoological Museum in Amsterdam, while there are many eggs and chicks of *e.g.* Herring Gulls *L. argentatus* and Sandwich Terns *Sterna sandvicensis* from the 19th century in these collections. Thijsse (1923) mentions that Schlegel told him there was a small colony near Hoek van Holland in the past, which however disappeared after the Nieuwe Waterweg was constructed. In short, it is well possible that Common Gulls bred in The Netherlands during the 19th century on Texel or near Hoek van Holland, but evidence is lacking.

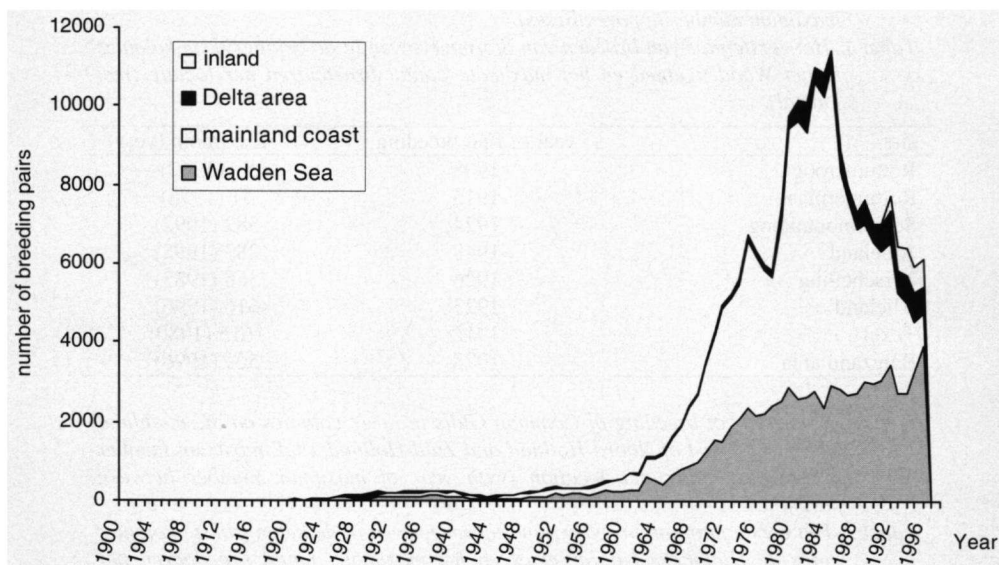


Figure 1. Population trend of Common Gulls in four areas in The Netherlands, 1900-96.
 Figuur 1. Populatieontwikkeling van de Stormmeeuw in vier deelgebieden in Nederland, 1900-96.

Breeding in the Wadden Sea area The first proved breeding case for The Netherlands took place in 1908, when two pairs settled on Rottumeroog (van Pelt Lechner 1908). In later years, Common Gulls settled also on the other islands and on the mainland coast (Table 1). At first, numbers increased slowly and remained low until 1934 (Fig. 1), with 11 pairs in 1920 and 97 in 1933. In 1934, just over 100 pairs nested in the Wadden Sea area, but numbers declined in later years, as a result of eggging during the Second World War (*e.g.* Brouwer 1948). After 1950, the number of breeding pairs rapidly increased, with 268 pairs in 1960, 1134 in 1970, 2885 in 1980 and 2871 in 1990. After 1990, numbers still increased, possibly as a result of immigration of Common Gulls from Noord-Holland (see below). The largest number of breeding pairs recorded in the Wadden Sea area was counted in 1996 (3885 pairs; van Dijk *et al.* 1998; Koks & Hustings 1998). Further breeding pairs in the Wadden Sea district have been observed in the Eems-Dollard area (since 1962, maximum 8 in 1995), on Engelsmanplaat (1 in 1972), along the mainland coast of Groningen (since 1992 irregularly 1 pair), in the Lauwersmeer (1 in 1990 and 1995), on the mainland

Table 1. First year of breeding of Common Gulls in large colonies in the Wadden Sea area, and maximum number of breeding pairs per location (with year of maximum number in parentheses).

Tabel 1. Het eerste jaar van broeden van Stormmeeuwen in de belangrijkste kolonies in het Waddengebied en het maximale aantal broedparen per locatie (met jaartal).

site	year of first breeding	maximum (year)
Rottumeroog	1908	80 (1967)
Rottumerplaat	1915	51 (1995)
Schiermonnikoog	1924	582 (1992)
Ameland	1948	283 (1995)
Terschelling	1926	368 (1983)
Vlieland	1923	616 (1996)
Texel	1912	1615 (1980)
Balgzand area	1978	529 (1996)

Table 2. First year of breeding of Common Gulls in large colonies on the mainland North Sea coast of Noord-Holland and Zuid-Holland, and maximum number of breeding pairs per location (with year of maximum number between parentheses).

Tabel 2. Het eerste jaar van broeden van Stormmeeuwen in de belangrijkste kolonies langs de Hollandse Noordzeekust en het maximale aantal broedparen per locatie (met jaartal).

site	year of first breeding	maximum (year)
Zwanenwater	1913	1100 (1986)
Petten	1962	1500 (1992)
Schoorl	1931	6515 (1986)
Castricum	1925	596 (1983)
Velzen (Hoogovens)	?	600 (1993)
Zandvoort	1928	280 (1980)
Wassenaar	1953	542 (1983)

coast of Friesland (1 in 1987), and on Griend (since 1978, maximum for this review was 26 in 1995, but 54 pairs nested on Griend in 1998; van Tienen & Baarspul 1998).

North Sea coast of mainland Noord-Holland and Zuid-Holland The first two pairs on the mainland North Sea coast of Noord-Holland settled in the nature reserve Zwanenwater, near Callantsoog, in 1913. Fairly soon two other colonies were established (Schoorl, Castricum; Table 2), of which the colony in Schoorl became the largest in The Netherlands, and one of the largest in Europe (cf. Cramp & Simmons 1983; Tasker 1994), during the mid 1980s. This colony was established in 1931 and increased steadily but slowly after the Second

World War (15 pairs in 1950, 140 in 1960). Only after 1968 (1015 pairs), numbers increased more rapidly, with 1700 pairs in 1970, 3500 pairs in 1975 and 5250 pairs in 1980, until the maximum was reached in 1986 (6515 pairs; Table 2). After that year, numbers started to dwindle fast, with 2300 pairs in 1990, and 800 pairs in 1992. Since then, Common Gulls have disappeared as breeding birds in Schoorl. In the Zwanenwater, numbers slightly increased after the first breeding attempts, with up to 15 pairs during the Second World War. After 1945 the increase was also slow, with 20 pairs in 1951 and 50 pairs in 1961. After 1970 (110 pairs), numbers rapidly increased. The maximum was reached here in 1986 (1100 pairs; Table 2). In the dunes near Castricum, numbers steadily increased until the beginning of the 1980s, after which they decreased. In 1996-98, 240 pairs bred in the dunes between Wijk aan Zee and Schoorl, of which maximally about 100 pairs were nesting in the dunes near Castricum (Q.L. Slings *pers. comm.*).

During the second half of the century, another three colonies became established along this coast. In 1951, a small colony was established in the nature reserve De Putten already in 1951 (maximum 18 pairs in 1991). In 1992, the species also began to nest in the dunes near Petten. This colony increased in numbers up to 1500 in 1992, after which numbers have dwindled down, but the colony at the Energy Centre The Netherlands (ECN) in these dunes is presently one of the largest colonies in The Netherlands. At the industrial area of the Hoogovens in IJmuiden about 600 pairs nested in 1993 (*pers. observ.*). The largest number of breeding pairs in Noord-Holland-Noord was reached in 1985 (7517 pairs) or 1986 (just over 8100 pairs, but see Ooyevaar 1987).

Along the mainland coast south of the Noordzeekanaal the first birds nested in the dunes near Zandvoort in 1928 (one pair), although breeding was suspected in 1925-27 (database Institute for Forestry and Nature Research, IBN-DLO). This colony disappeared in 1934, after which only solitary pairs bred at this location every once in a while, at least until 1962. In 1973, a new colony was established with 110 pairs, and numbers increased up to 280 in 1980, after which the population decreased to only a few pairs during the 1990s. The only other large colony in this part of The Netherlands started in Meijndel (near Wassenaar) in 1953, in a large colony of Herring and Lesser Black-backed Gulls *L. graellsii* (Bouman *et al.* 1991). After 1983, numbers rapidly decreased to 10-20 pairs in 1993-96. Apart from these large colonies, four smaller ones were established near the coast, of which the colony near Bloemendaal was one of the largest (first breeding in 1942, max. 42 pairs in 1980). In IJmuiden, just south of the Noordzeekanaal, the first breeding pairs settled in 1985, and the maximum was reached in 1994 (64 pairs). The two other colonies held a maximum of 1-2 pairs (Santpoort, 1989-90) and 26 pairs (Berkheide 1995), respectively. The largest number of breeding Common Gulls on the mainland coast south of the

Table 3. First year of breeding of Common Gulls in large colonies in the Delta area (also including the small colony on former 'De Beer'), and maximum number of breeding pairs per location (with year of maximum number between parentheses).

Tabel 3. Het eerste jaar van broeden van Stormmeeuwen in de belangrijkste kolonies in het Deltagebied (inclusief De Beer) en het maximale aantal broedparen per locatie (met jaartal).

site	year of first breeding	maximum (year)
De Beer (ZH)	1916	10 (1963)
Europoort-Maasvlakte (ZH)	1968	520 (1992)
Hompelvoet (ZH)	1964	65 (1996)
Meeuwenduinen, Haamstede (Z)	1948	120 (1979)
Slikken van Flakkee-Zuid (ZH)	1981	60 (1994)
Roggenplaat (Z)	1978	54 (1996)
Veermansplaten (Z)	1981	81 (1996)
Moerdijk (NB)	1981	29 (1995)
Neeltje Jans (Z)	1978	89 (1982)

Noordzeekanaal was reached in 1983 (656 pairs). In 1996, only 864 pairs of Common Gulls in total were breeding on the mainland North Sea coast (van Dijk *et al.* 1998).

Breeding in the Delta area The first breeding in the Delta area during the 20th century possibly took place in the Flaaauwers-Weevers Inlagen on Schouwen (Zeeland) in 1907 (Beekman *et al.* 1986; database IBN-DLO). However, breeding could not be proved until 1909. In the northern part of the Delta area the first pairs nested in the nature reserve De Beer, opposite Hoek van Holland, in 1916 (Table 3). Colonies in the Delta area have always remained small and rarely exceeded 100 pairs (median number of breeding pairs per colony = 5, $n = 440$ colony years). The only exception is the colony on the industrial area Maasvlakte, more or less where former 'De Beer' was situated until 1964, when the Maasvlakte was constructed. Here, several colonies are distributed over an area of approximately 2500 ha. In one colony, numbers increased to 520 pairs in 1992, 66% of the total population of the Delta area in that year. The number of breeding pairs in the entire Maasvlakte area varied between 130 and 657 pairs during 1981-1994. After 1994, numbers slightly declined (318 pairs in 1996; van Dijk *et al.* 1998). Apart from the colonies mentioned in Table 3, Common Gulls have bred on 47 irregularly occupied locations in the Delta area, each holding 1-25 pairs at most (4 pairs on average). The largest number of breeding Common Gulls in the Delta area was reached in 1992 (827 pairs). In 1996, 650 pairs were located in the Delta area (van Dijk *et al.* 1998).

Table 4. First year of breeding of Common Gulls in some inland colonies (province between brackets) until 1992, and maximum number per location (year of maximum number between parentheses). At least 30 small colonies were established since 1992.

Tabel 4. Het eerste jaar van broeden van Stormmeeuwen in enkele kolonies in het binnenland en het maximale aantal broedparen per locatie (met jaartal). Sinds 1992 vonden nog zeker 30 andere (kleine) vestigingen plaats.

site	year of first breeding	maximum (year)
Medemblik (NH)	1986	1 (1986)
Alkmaar (NH)	1991	398 (1996)
Noordoostpolder (Fl)	1943	63 (1994)
Lelystad (Fl)	1986	1 (1986)
Zuid-Flevoland (Fl)	1973	5 (1987)
Nauerna (NH)	1992	17 (1996)
Spaarnwoude (NH)	1988	2 (1995)
Ruigoord (NH)	1989	1 (1989)
Spaarndam (NH)	< 1991	3 (1992)
Amsterdam-West (NH)	1976	6 (1981)
Amsterdam ZO (NH)	1979	3 (1979, 1994-95)
Haarlemmermeer (NH)	1987	52 (1995)
Kaliwaal (Gld)	1982	4 (1990)
Millingerwaard (Gld)	1947	4 (1969)
Budel-Dorplein (NB)	1963	26 (1989)
Ossendrecht (NB)	1936	1 (1936)

Inland breeding Until recently, Common Gulls have seldom been found nesting away from the coast: up to 1992, pairs have been found on only 16 inland locations (Table 4). With one or two exceptions, however, these sites have not been occupied each year. Since then, at least 30 other colonies became known, most of them in northern Noord-Holland (SOVON *pers. comm.*, see also Woutersen 1994). Most colonies remained, however, rather small (< 100 pairs). In the Noordoostpolder (Fl), the birds nest in potatoe and sugar beet fields in the western part of the polder (Bremer 1995). The inland nesting Common Gull population is still growing, both in number of colonies and in number of breeding pairs. The largest number of inland breeding Common Gulls was reached in 1996, when 725 pairs were counted in 32 colonies (van Dijk *et al.* 1998; SOVON *pers. comm.*).

DISCUSSION

During the breeding season, Common Gulls are typically coastal birds (Figs 2-3), probably even more so than Herring Gulls. They prefer to nest in medium to

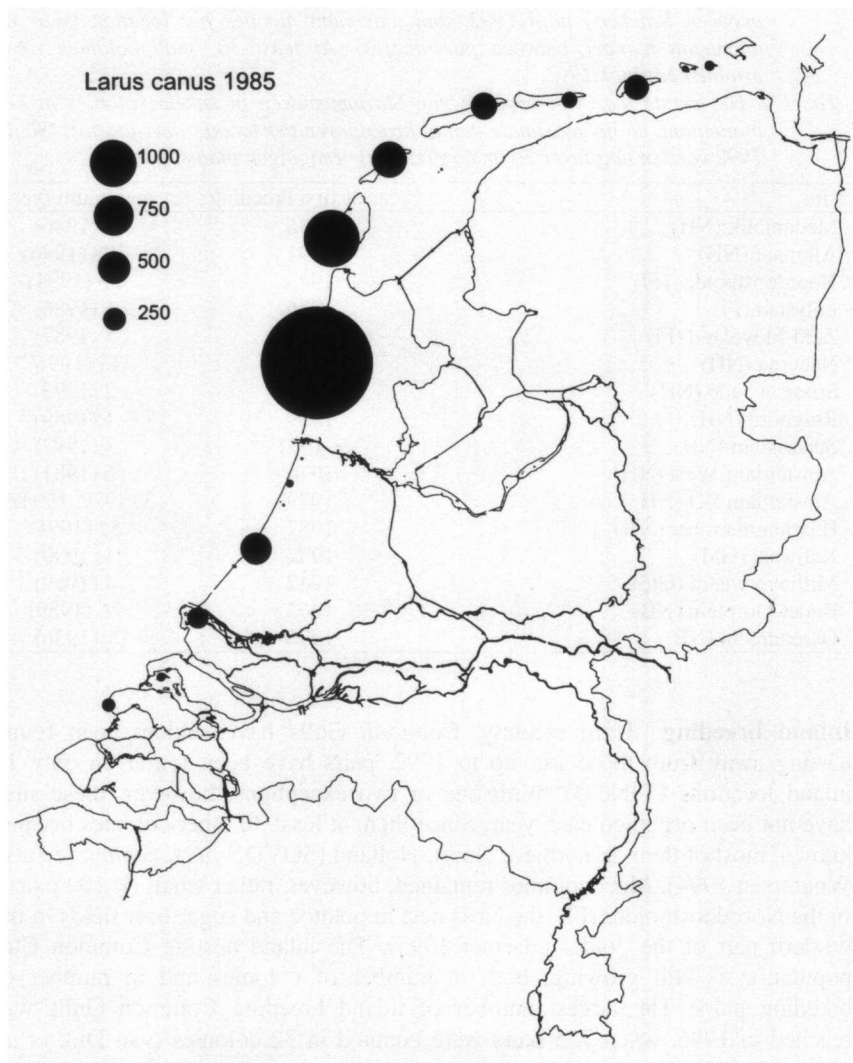


Figure 2. Distribution of breeding Common Gulls in The Netherlands in 1985.

Figuur 2. Verspreiding van de Stormmeeuw als broedvogel in Nederland in 1985.

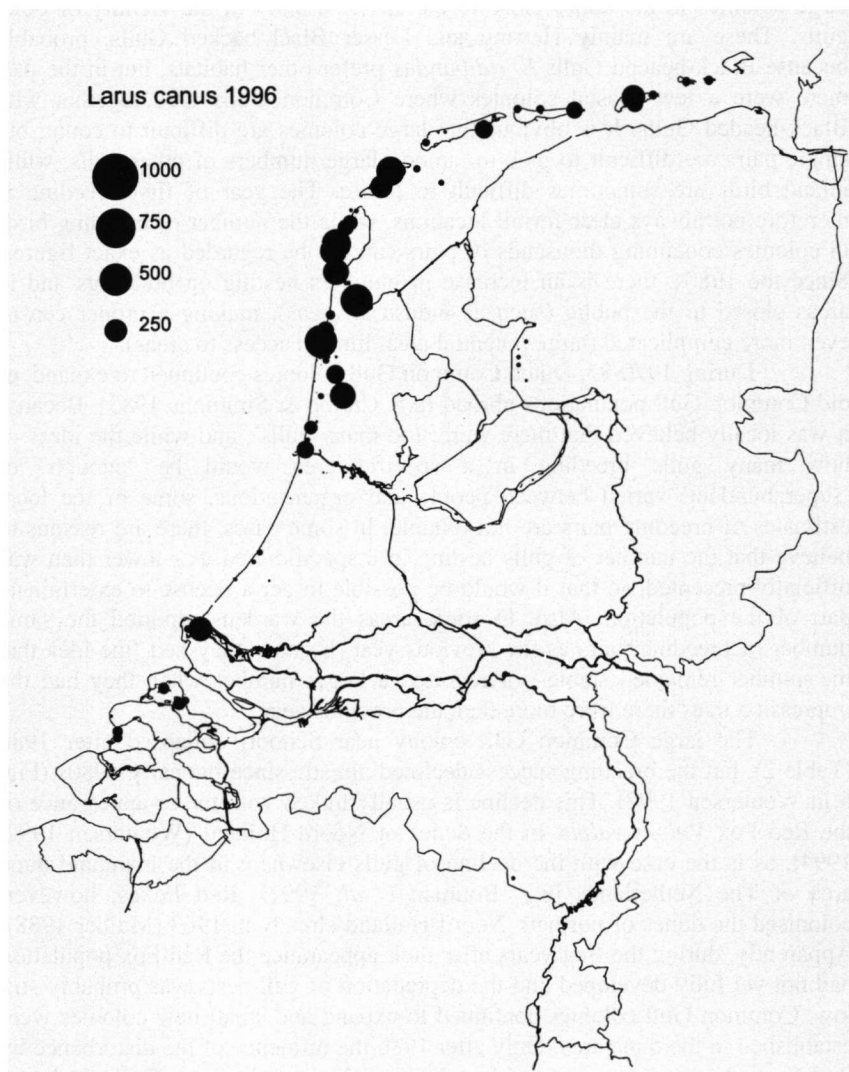


Figure 3. Distribution of breeding Common Gulls in The Netherlands in 1996.
Figuur 3. Verspreiding van de Stormmeeuw als broedvogel in Nederland in 1996.

large colonies in the dunes close to the shore, usually in the vicinity of other gulls. These are mainly Herring and Lesser Black-backed Gulls, probably because Black-headed Gulls *L. ridibundus* prefer other habitats, but in the past there were a few coastal colonies where Common Gulls bred together with Black-headed Gulls. It is obvious that large colonies are difficult to count, but single pairs are difficult to pick up among large numbers of other gulls, while inland birds are sometimes difficult to locate. The year of first breeding is therefore not always clear for all locations, while the number of breeding birds in colonies containing thousands of pairs can not be regarded as exact figures. Since the 1980s, there is an increase in numbers nesting on buildings and in areas closed to the public (such as industrial areas), making a proper census even more complicated (large potential area, limited access to areas).

During 1970-85, Dutch Common Gull colonies continued to expand, as did Common Gull populations abroad (e.g. Cramp & Simmons 1983). Because it was locally believed that there were 'too many gulls', and while the ideas of how many gulls breeding in a specific area would be 'enough' or 'superabundant' varied between people and organisations, some of the local estimates of breeding pairs are not reliable. In some cases, there are reasons to believe that the number of gulls nesting in a specific area was lower than was officially presented, so that it would be possible to get a license to exterminate part of the population. Also, in some areas the wardens reported the same number of breeding pairs as the previous year, because they had 'the idea that the number remained stable', or reported a larger number when they had the impression that 'there were more than the previous year'.

The large Common Gull colony near Schoorl collapsed after 1986 (Table 2), but the breeding success declined already since the early 1980s (Fig. 6 in Woutersen 1992). This decline is usually linked with the re-appearance of the Red Fox *Vulpes vulpes* in the dunes of Noord-Holland (Woutersen 1992, 1994), as is the case with the decline of gulls elsewhere in the mainland dune area of The Netherlands (e.g. Bouman *et al.* 1991). Red Foxes, however, colonised the dunes of northern Noord-Holland already in 1968 (Mulder 1988). Apparently, during the first years after their appearance the Red Fox population had not yet fully developed and the depredation of gull nests was probably still low. Common Gull colonies continued to expand and small new colonies were established in the dune area. Only after 1986 the influence of the disturbance by Red Foxes became apparent and breeding numbers of Common Gulls declined, the gulls dispersed and formed new colonies elsewhere (Fig. 3).

In that period, Common Gulls started to nest on buildings (e.g. Kooistra 1985), in areas with limited access to Red Foxes (e.g. Costers 1992), and outside the dune area (Groot & Cottaar 1992; Woutersen & Roobeek 1992; J. van Dijk *pers. comm.*). In 1993, at least 20 colonies were located in northern

Table 5. The importance (%) of the mainland North Sea coast for breeding Common Gulls, relative to populations in the Wadden Sea, in the Delta area, and the interior (+ = <0.5%).

Tabel 5. Relatieve betekenis (%) van de Hollandse kust (mainland North Sea coast) als broedgebied voor Stormmeeuwen in vergelijking met het Waddengebied, het Deltagebied en de broedgebieden in het binnenland (inland).

periods	Wadden Sea	mainland North Sea coast	Delta area	inland
1900-10	70	0	30	0
1911-20	54	28	18	0
1921-30	51	32	16	0
1931-40	47	42	10	+
1941-50	36	49	14	+
1951-60	45	48	6	+
1961-70	39	59	2	+
1971-80	35	63	3	+
1981-90	30	62	6	+
1991-96	47	32	13	8

Noord-Holland, outside the coastal area (Woutersen 1994). During the first years after the numerical decline in the colony in Schoorl, adult Common Gulls still appeared in the breeding area from late March onwards and occupied territories (*pers. observ.*). However, the entire population then disappeared soon, while numbers were built up elsewhere. It is not clear what happened to all the pairs that disappeared from the main colonies in Noord-Holland, but it is assumed that the gulls partly emigrated to the Delta and Wadden Sea areas, where numbers increased (Fig. 1, Table 5).

In Meijndel, Zuid-Holland, Red Foxes appeared in 1976 (Bouman *et al.* 1991), but due to hunting activities the number of foxes remained low. From 1980 onwards, predation on gulls increased; from 1986 numbers of Red Foxes built up and Common Gulls in Meijndel, as in Schoorl, decreased in numbers and finally disappeared. After the first Red Foxes started depredating gulls in Meijndel, the birds moved to the outer dunes, whilst they initially nested more inland. In Schoorl, this was not observed, because the reserve-wardens removed gull nests in the outer dunes (and succeeded in 1986 for the first time in their eradication efforts).

For most colonies in The Netherlands, it is unknown how many Common Gull chicks fledge. At Texel, in 1980, Arbouw (1985) found 0.47 fledged chicks per pair, while Overdijk (1998) found 1.43 fledged young per pair on Schiermonnikoog in 1997. De Jong (in Woutersen 1992) found 0.38-0.48 fledged young per pair at Schoorl in 1983, Keijl *et al.* (1987) 1.3 large chicks per pair in 1986. If Common Gulls breeding in small colonies or

solitarily are less successful than birds breeding in large colonies (as has been found for several other gulls and terns, *e.g.* Cramp & Simmons 1983), it is likely that numbers will further decline on the mainland North Sea coast after 1997. In the Delta and Wadden Sea areas, numbers have increased after the steep decrease on the mainland North Sea coast. Red Foxes are rare in the south-west of The Netherlands and have never been found alive on the Wadden islands. Until Red Foxes are introduced on the Wadden Sea islands, Common Gulls will probably increase until factors other than predation will limit their numbers.

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SAMENVATTING

In dit artikel wordt de populatieontwikkeling van de Stormmeeuw Larus canus in ons land geschetst. Hiertoe worden vier deelgebieden onderscheiden: de Waddenzee, inclusief het aangrenzende vasteland, de Noordzeekust van Noord- en Zuid-Holland (exclusief de eilanden in het zuidwesten van Zuid-Holland), het Deltagebied en het binnenland. Stormmeeuwen vestigden zich deze eeuw in 1908 voor het eerst als broedvogel op de Waddeneilanden. Daarna volgden respectievelijk de Delta, Noord-Holland, Zuid-Holland en het binnenland. De aantallen bleven laag tot 1963, toen voor het eerst meer dan 1000 paar in ons land nestelden. De grootste aantallen broedden toen in het Waddengebied en in Noord-Holland. Vanaf het einde van de jaren vijftig nam het relatieve belang van Noord-Holland toe; in 1985 broedde hier bijna 60% van de populatie, waarvan 52% in de kolonie bij Schoorl. Eind jaren zestig verschenen er Vossen Vulpes vulpes in dit duingebied, maar de invloed hiervan werd pas duidelijk vanaf het midden van de jaren tachtig, toen de kolonie in Schoorl in drie jaar tijd bijna halveerde. Ook de vrij grote kolonie in Meijndel had te lijden van predatie en verstoring door Vossen en verdween kort na 1983 vrijwel geheel. Vanaf deze periode verspreidden de meeuwen zich, hetgeen duidelijk werd in het aantal solitaire paren en kleine kolonies elders in het land, en afwijkende locaties (onder andere op daken in steden). Tegelijkertijd nam het aantal broedende Stormmeeuwen in het Waddengebied en de Delta toe, hetgeen suggereert dat de meeuwen uit Schoorl en Meijndel zich elders vestigden. Vermoedelijk nam ook het broedsucces (uitgedrukt als het aantal jongen per succesvol paar) af. Omdat Vossen op het vasteland tegenwoordig talrijk in de duinen aanwezig zijn, ligt het niet voor de hand dat zich hier nog grote meeuwenkolonies zullen vestigen. De bolwerken voor Stormmeeuwen bevinden zich momenteel op de Waddeneilanden en in de Delta. De meeuwen zullen hier veilig zijn, zolang er geen grondpredatoren zoals Vossen komen.

REFERENCES

- Albarda H. 1897. Aves Neerlandicae. Naamlijst van Nederlandsche vogels. Meijer & Schaafsma, Leeuwarden.
- Arbouw G.J. 1985. Over de broedbiologie van de Stormmeeuw *Larus canus* op Texel. Limosa 58: 109-112.
- Arts F. 1993. Kustbroedvogeldatabase DGW/SOVON. SOVON-rapport 93/07. SOVON, Beek-Ubbergen.

- Beekman F., Beijersbergen J., Leefink K., Meininger P.L., Sluijter T.C.J. & Vergeer J.-W. (eds) 1986. De vogels van Schouwen-Duiveland. Werkgroep Avifauna Natuur- en Vogelwacht Schouwen-Duiveland, Zierikzee.
- Blaauw F.E. 1893. Comparative list of the birds of Holland and England. Notes Leyden Museum 15: 183-239.
- Bouman A.E., Bruijn G.J. de, Hinsberg A. van, Sevenster P., Wanders E.A.J. & Wanders R.M. 1991. Meeuwen. Opkomst en ondergang van een meeuwenkolonie. Wet. Meded. KNNV 204. Stichting Uitgeverij Koninklijke Nederlandse Natuurhistorische Vereniging, Utrecht.
- Bourne W.R.P. & Whilde T. 1997. Common Gull *Larus canus*. In: Hagemeijer E.J.M. & Blair M.J. (eds) The EBCC atlas of European breeding birds. T. & A.D. Poyser, London.
- Braaksma S. 1964. Het voorkomen van de Stormmeeuw (*Larus canus* L.). Limosa 37: 58-95.
- Bremer P. 1995. Het broedbiotop van de Stormmeeuw *Larus canus* in de Noorddoostpolder. Limosa 68: 97-101.
- Brouwer G.A. 1948. De gevolgen van de oorlog voor de Nederlandse fauna. Natuur & Landschap 2: 2-13.
- Burger J. & Gochfeld M. 1996. Family Laridae (Gulls). In: Hoyo J. del, Elliott A. & Sargatal J. (eds) Handbook of the birds of the world, 3: 572-623. Lynx Edicions, Barcelona.
- Costers R. 1992. Hoe vergaat het de Stormmeeuw *Larus canus* bij Petten? Sula 6: 93-99.
- Cramp S. & Simmons K.E.L. (eds) 1983. The birds of the Western Palearctic, 3. Oxford Univ. Press, Oxford.
- Dijk A.J. van, Boele A., Zoetebier D. & Meijer R. 1998. Kolonievogels en zeldzame broedvogels in Nederland in 1996. SOVON-monitoringrapport 1998/07. SOVON, Beek-Ubbergen.
- Dijk A.J. van, Hustings F., Sierdsema H. & Meijer R. 1997. Kolonievogels en zeldzame broedvogels in Nederland in 1995. SOVON-monitoringrapport 1997/06. SOVON, Beek-Ubbergen.
- Drijver J. 1934. Texel. Het vogeleiland. De Spieghel, Amsterdam / Het Kompas, Mechelen.
- Groot H. & Cottaar F. 1992. Meer broedgevallen van de Stormmeeuw *Larus canus* in Noord-Holland buiten het duingebied. Sula 6: 112-113.
- Keijl G.O., Roomen M.W.J. van & Veldhuizen van Zanten H. 1987. Voedseloeologie van de Stormmeeuw (*Larus canus*) te Schoorl 1986. Voedselkeuze en fourageerritme in de periode dat de jongen worden grootgebracht. Rapport. Hogeschool Holland, Diemen.
- Koks B. & Hustings F. 1998. Broedvogelmonitoring in het Nederlandse Waddengebied in 1995 en 1996. SOVON-monitoringrapport 1998/05. SOVON, Beek-Ubbergen.
- Kooistra H. 1985. Stormmeeuwen *Larus canus* broedend op en tegen gebouwen. Limosa 58: 73-74.
- Mulder J.L. 1988. De Vos in het Noordhollands Duinreservaat. Deel 3: de Vossenpopulatie. RIN-rapport 88/43. Rijksinstituut voor Natuurbeheer, Arnhem.
- Ooyevaar C.J. 1987. Verslag over de bewaking, inventarisatie en surveillance, 1986, in het natuurreservaat "Klein Ganzenveld". Staatsbosbeheer, Schoorl.
- Overdijk O. 1998. Onderzoek aan de Stormmeeuw op Schiermonnikoog in 1997. In: Veen J., Overdijk O. & Koning H. (eds) Beheer van de Zilvermeeuw op Schiermonnikoog. Verslag werkzaamheden 1997: 11-19. Rapport. Instituut voor Bos- en Natuuronderzoek, Wageningen.
- Pelt Lechner A.A. van 1908. De Kleine Zeemeeuw - *Larus canus* L. - broedvogel op Rottum. Versl. Meded. N.O.V. 5: 34.
- Schlegel H. 1853. Naamlijst der tot heden in de Nederlanden in den wilden staat waargenomen vogels. In: Herklots J.A. Bouwstoffen voor eene fauna van Nederland, 1: 58-103. Brill, Leiden.
- Spaans A.L. 1980. Gull demography in The Netherlands. Gull Study Group Bull. 2: 4-9.
- Spaans A.L. 1998. Booming gulls in the Low Countries during the 20th century. Sula 12: 121-128.
- Tasker M.L. 1994. Common Gull *Larus canus*. In: Tucker G.M. & Heath M.F. (eds) Birds in Europe: their conservation status: 289-290. BirdLife Conservation Series 3. BirdLife, Cambridge.
- Thijssse J.P. 1923. Het Vogeljaar, 3e druk. Versluys, Amsterdam.

- Tienen P.G.M. van & Baarspul A.N.J. 1998. Griend, vogels en bewaking 1998. Eigen uitgave, Wageningen.
- Woutersen K. 1992. De Stormmeeuw *Larus canus* als broedvogel in de Schoorlse duinen. Sula 6: 81-92.
- Woutersen K. 1994. Heden, verleden en toekomst van de meeuwen in de Kop van Noord-Holland. Graspieper 14(2): 1-42, I-X.
- Woutersen K. & Roobeek K. 1992. Broedgevallen van de Stormmeeuw *Larus canus* in het binnenland in Noord-Holland. Sula 6: 51-55.



Early photo of breeding Common Gull *Larus canus* in The Netherlands (Texel, 7 June 1912)
Vroege foto van broedende Stormmeeuw in ons land (A. Burdet in: Thijsse 1923).