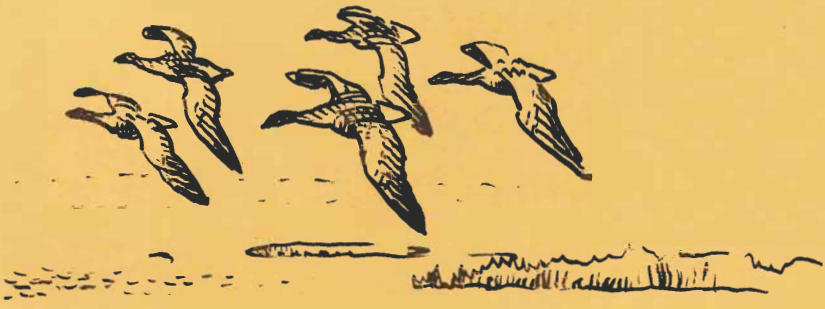

WETLANDS INTERNATIONAL GOOSE SPECIALIST GROUP BULLETIN

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Ministry of the Environment

National Environmental Research Institute

No 8, November 1996

WETLANDS INTERNATIONAL

The Goose Specialist Group of Wetlands International

The Wetlands International Goose Specialist Group monitors goose populations with the aim of providing reliable population estimates and information on goose trends, distribution and breeding success. The Group reviews current status and management of goose populations and encourage studies of population dynamics and habitat ecology.

The Group has a coordinator for the Western Palearctic, Eastern Palearctic/Oriental and North America, respectively, and a steering committee for the work done in the Western Palearctic. In addition, in each Western Palearctic country, the Group has one national coordinator who is responsible for organising and reporting the annual, international goose counts on the days designated by the Group. These counts are stored in a centralised database: theWetlands International Western Palearctic Goose Database.

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Editorial

Time for a change!

Announcement of the resignation of the coordinator

Welcome to issue number two of the Goose Bulletin for 1996 in which we again present a series of interesting reports and announcements.

However, the first announcement is to inform you about my decision to step down as coordinator of the Goose Specialist Group. I took on the role as coordinator in 1987 and, having chaired the Group for 10 years, it is now time to pass the job on to somebody else who can spark new energy into the work of the Group. I have therefore written to Wetlands International to announce my resignation, preferably to take effect before the end of this year. The primary reason for my decision is simply lack of sufficient time: I have too many current activities, in addition to my growing frustration over the huge backlog of data which we are accumulating but which never gets worked up. It has not been an easy decision to stand down since the role has been interesting and challenging, working initially for IWRB and now Wetlands International. Not least it has been a great pleasure and stimulus to work with all of you who make up our network and who make the Group function effectively. There have been many ups and downs in our level of activity and I think we all would have hoped that progress with the development of the Goose Specialist Group and the Database would have been faster and further advanced than it has been. Nevertheless, I feel, and hope that you agree, that we have achieved a great deal over the last ten years.

The work of the Group must, of course, continue. We are already working hard to find a keen and willing successor and an institute/organisation which will host not only the new coordinator but also the Goose Database within the next few months. We have decided that the Database should naturally follow the coordinator since there is so much mutual benefit of keeping the two together. Their linkage creates a scientific momentum and enhances communication (not only within the coordination process but also through regular contact with the network and Wetlands International headquarters) as well as improving the strategic planning of the work of the Group.

Hence, the change will also involve handing over the Goose Database to the new coordinator and, consequently, Stefan Pihl will cease to function as database coordinator. I know that Stefan is sad to say good-bye to the database work and I wish to thank him personally for all the enormous effort he has put into it (Stefan will, however, continue as coordinator of the Seaduck Specialist Group and the Seaduck database). Furthermore, we shall also hand over the editing and distribution of the Goose Bulletin. Many thanks to Tony Fox, Helle Jensen and Preben Clausen who have been the driving forces behind the editing.

At the moment, we have no successor but hope to be able to announce him/her at the Annual Meeting of the Goose Specialist Group at Martin Mere in December.

We must apologise for the late appearance of this Bulletin (which was almost ready for publication in August) but delayed due to unforeseeable staff shortages. We again bring you a variety of articles which we hope you will find of interest, including more reports presented at the Poland meeting of the Group. Enjoy reading this edition of the Bulletin, and do please continue to send submissions to the present editorial address in the prospect of the Bulletin continuing under the new coordinator.

Looking forward to seeing as many of you as possible at Martin Mere.

Jesper Madsen

IMPORTANT NOTICE: Please note that Wetlands International have now moved all their operations from Slimbridge. The Africa, Europe and Middle East operations and the International Coordination Unit are now both based at:

Wetlands International
Marijkeweg 11
P.O. Box 7002
NL-6700 AC Wageningen
The Netherlands

telephone +31-317-474-711
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Status report

Western Palearctic Goose Database

International Counts

In addition to the international waterfowl census (IWC) which includes counts of all goose species in the middle of January, international counts are conducted in September (Greylag Goose), November (Bean and White-fronted Goose), March (Barnacle Goose) and May (Brent Goose). We thank the national coordinators for arranging these counts and supplying the data to the Goose. As an update to Table 1 in GSG Bulletin No.7, data have been received from Belgium (1994,1995), Bulgaria (1995), Denmark (site-based, 1996), Estonia (1994), France (Brent Goose site-based 1996, *Anser* sp. 1995), Ireland (1995), Latvia and Lithuania (1995, 1996), Luxembourg (site-based 1995, 1996), Morocco (1995), Netherlands (1991, 1992, 1995), Spain (site-based 1995), Sweden (site-based 1996), Turkey (limited data 1995) and United Kingdom (1995). The site-based data in the Goose Database currently contains counts from 1,365 sites from 29 countries, whereas the national-totals database contains data from 42 countries.

Data

Congratulations to the Netherlands on the completion of the major restructuring of their goose database, involving the revision of count site categories and goose count results from previous years. These modifications greatly improve our basis for data analysis, particularly because Belgium has also submitted count data for the last couple of years.

Funding

The Wetlands International Goose Specialist Group is grateful to acknowledge the following organisations for their support to the Goose Database in 1995: Deutcher Jagdschutz-Verband e.V. (Germany), Bestuur Jachtfonds (the Netherlands), Department of Wildlife Ecology of the National Environmental Research Institute (Denmark).

Update to Goose Ringing Scheme Catalogue

Further to the catalogue produced in Goose Bulletin 6: 6-14, we wish to draw attention to the following amendments:

Dark-bellied Brent Goose *Branta bernicla bernicla*

H01 NL	Type/colour/code	Legring/yellow,white,light green, dark green, light blue, dark blue, orange, red (ring on both legs)/1 character
	Project start	1973
	Correspondent	Bart Ebbinge, IBN-DLO, P.O. Box 23, NL-6700 AA Wageningen, The Netherlands.
	Remarks	A joint British (A.K.M. St Joseph), Dutch (Bart Ebbinge) and German (Peter Prokosch) project

Dark-bellied Brent Goose *Branta bernicla hrota*

I02 UK	Type/colour/code	Legring/white,light green,orange, red/ (2 characters) and/or combination of colours
	Project start	1988
	Correspondent	Steve Percival, Ecology Centre, Science Complex, Sunderland University, SR1 3SD UK, or Preben Clausen, National Environmental Research Institute, Kalø, Grenåvej 12, DK-8410 Rønde, Denmark
	Remarks	A joint UK/DK project. Geese caught in England, Denmark and Svalbard; in 1979, some geese were also marked with orange rings (no code)

Status report

Promoting wise use of individual marking techniques for geese

At the Goose Specialist Group meeting in Poland, it was agreed that all goose marking schemes in the Western Palearctic not only need to be registered with the Goose Specialist Group Coordinator, but that researchers contemplating starting a new scheme, or expanding an existing programme, should seek permission from the Coordinator in advance to avoid schemes duplicating codes. As there are now many marking schemes operational in Europe which are concerned with the capture of geese and their resighting in the field, it seems timely that there is some review of the techniques used to date. In particular, for the benefit of groups and individuals contemplating starting a scheme, we are publishing here recommended sizes of leg bands and neck collars to be used on different goose species. The idea arose from recent discussions about the weight of plastic neck collars used on wild swans, when Carl Mitchell found he was unable to gather extensive information about size and weight of collars currently in use. In former times, the Wildfowl & Wetlands Trust (WWT) was the foremost supplier of plastic rings to much of Europe, but this is no longer the case, and the possibility arises that new groups may use inappropriate sizes or thickness of material.

Clearly, there is a need to promote wise use of and common standards in individual marking techniques, and so we would like to establish a forum for the collation of experiences on the effectiveness of materials used. There is a particular problem with materials, since there are so many laminated plastics on the market at present, differing often only in brand names. For instance, WWT only uses DARVIC for the manufacture of leg rings, and 2-PLEX (supplied by Pro-touch Engraving, Bay 2, 811 51 Street E., Saskatoon, Saskatchewan, Canada S7K 0X7, tel +1-306-242-5755, fax +1-306-975-3757) for collars. We would be very grateful if all researchers registered with the Wetlands International Goose Specialist Group Individual Marking Scheme Register would let us (send to Carl Mitchell at WWT) have details of the size, weight and material of the leg ring or collar used by their scheme so that we might be in a position to recommend best practice in a future edition of the Bulletin. In the meantime, to start the process, we reproduce below a table showing provisionally recommended plastic leg ring and neck collar dimensions and weights as used by WWT (Table 1), which we recommend

are adopted as widely as possible, unless there are good reasons from other schemes not to do so.

We have received a number of complaints about the use of neck collars on small *Branta* species, and for this reason feel it is very important that collars not be used on these species.

Table 1. Provisional recommendations for plastic leg ring and neck collar dimensions and weight.

Species	**Leg band** (internal diameter x height x thickness in mm)	Approx. Weight	**Collar** (internal diameter x height x thickness in mm)	Approx. Weight
Bean Goose	16 x 32 x 1.5	6-7 g	43 x 45 x 1.5	16.2 g
Pink-footed Goose	16 x 32 x 1.5	6-7 g	43 x 45 x 1.5	16.2 g
White-fronted Goose	16 x 32 x 1.5	6-7 g	43 x 55 x 1.5	16.2 g
Lesser White-fronted Goose	11 x 22 x 1.5	3-4 g		
Greylag Goose	19 x 32 x 2.0	7-8 g	44 x 45 x 1.5	16-20 g
Brent Goose	11 x 22 x 1.5	3-4 g	NOT TO BE USED	
Barnacle Goose	14 x 32 x 1.5	3-4 g	NOT TO BE USED	
Red-breasted Goose	11 x 22 x 1.5	3-4 g	NOT TO BE USED	
Canada Goose	19 x 32 x 2.0	7-8 g	45-50 x 64 x 1.5	20-30g

Please send all experiences and information to Carl Mitchell at the address below, and we shall endeavour to organise a workshop on the subject at the forthcoming winter group meeting at Martin Mere in December. We look forward to your responses.

Carl Mitchell, Wildfowl & Wetlands Trust, Slimbridge, Gloucestershire, GL2 7BT, UK
Tony Fox and Jesper Madsen, Department of Coastal Zone Ecology, National Environmental Research Institute, Kalø, Grenåvej 12, DK-8410 Rønde, Denmark

Regional report

Counts of Lesser White-fronted Geese in Azerbaijan, January/February 1996

A major search for the wintering grounds of this key species was conducted in Azerbaijan in addition to the Wetlands International mid-winter counts during January and February 1996. The project was coordinated by Flora and Fauna International, supported by BP/Statoil and carried out by participants from the Norwegian Ornithological Society, Wildfowl & Wetlands Trust (UK), and the Zoological Institute of the Azerbaijan Academy of Sciences. The project aimed to (i) establish appropriate methods for conducting annual winter bird counts, (ii) assess the status of key wintering species based on current counts and the historical perspective of local observers and (iii) provide the information base for the development of a management plan for key areas.

Various areas were searched for wintering geese, with particular emphasis on the Kizil Agach and Shirvan Nature Reserves. Recent population estimates have been based upon information that 35,000-40,000 Lesser White-fronts wintered in the Kizil Agach area, but local people and staff from the reserves confirmed that combined numbers of White-fronted and Lesser White-fronted Geese have declined from 17,000-25,000 to 5,000-6,000 in recent years (although the species have not always been distinguished). Historically, numbers of geese in the area (including Lesser Whitefronts) have varied considerably, depending on hydrological conditions - wet winters see relatively few birds when semi-desert areas are flooded. Identification is always a problem in the area, the more common Whitefronts outnumbering the rarer species. However, in the late 1970s, it is thought that the Lesser Whitefront population wintering in Azerbaijan varied between 1,500 and 7,000 birds, i.e. far less than generally accepted.

In the entire Kizil Agach area, we found a total of 1,058 Lesser White-fronted Geese (about 60% of all white-fronted geese in the area), with a further 27 at the Shirvan Reserve. Locals reported that there had been many more geese than the 3,300 we witnessed earlier in the winter, before unusually cold weather had forced them to other wintering areas. However, the majority of the 10,000 geese that had been present were thought to be Greylags, so perhaps numbers of Lesser White-fronted Geese had not been higher. Geese regularly migrate onwards from Azerbaijan, so where do they

continue on after this? Just how many Lesser White-fronted Geese may use the reserve in a normal winter it is not possible to say.

Although we were unable to visit the southern side of Sarasuy Lake, another important goose area which could contribute to the total, it is clear that there are not vast numbers of Lesser White-fronted Geese undetected in Azerbaijan, and this, together with recent experience of local observers, strengthens the view that the species is in serious trouble. The age ratios we conducted showed 3-6% juveniles amongst the flocks, with mean brood size barely in excess of one, alarmingly low for a threatened species of geese, which suggests poor breeding success may contribute to the pattern of decline.

Local contacts were established to try to ensure that standardised counts will be carried out in the future on a regular basis to monitor the population in this area. A full report of the project is available from Flora and Fauna International, Wetlands International or The Wildfowl & Wetlands Trust (Paynter et al.1996).

David Paynter, The Wildfowl & Wetlands Trust, Slimbridge, Gloucestershire GL2 7BT, UK

References

Paynter, D., Aarvak, T. & Sultanov, E. 1996: Conservation of Wetland Reserves in Azerbaijan. - Report by Wildfowl & Wetlands Trust, Noweigian Ornithological Society and the Azerbaijan Zoological Insitiute of the Academy of Sciences, Slimbridge.

Regional reports

A new system of bag reporting from Iceland

For many years, people have speculated about the level of goose-hunting in Iceland. Some attempts have been made to estimate the size of the hunting bag from ringing recoveries while others have resorted to pure guesswork. The number of hunters active in Iceland has not been previously known, although the number of gun licenses issued has been available for several years. With the introduction of new hunting legislation in Iceland in July 1994, every hunter is now required to obtain a hunting license from The Wildlife Management Institute, valid for one year. The hunters are required to return a bag report to the Institute and will not have their license renewed unless they do so. The annual fee for the hunting license is 1,500 ISK, equivalent to around £15 (Pounds Sterling). A part of this fee is used to cover the administrative costs of processing the records and licenses, while most will be used to fund management research. This licensing system is considered by most people as a major step forward in the management of quarry species in Iceland.

The preliminary bag totals for the first year of the scheme (1995) were released by The Wildlife Management Institute in spring 1996. They had been awaited with some enthusiasm by many and, as expected, there were a few surprises amongst the totals for some species, whilst the figures for others were as anticipated. The bag totals for the four species of geese that are hunted in Iceland are shown in Table 1.

Table 1. Preliminary numbers of geese reported shot in Iceland during 1995. The data are based on collation from 9,578 reports, with a return rate of approximately 85%.

Species	Total bag
Greylag Goose *Anser anser*	34,717
Pink-footed Goose *A. brachyrhynchus*	10,505
Greenland White-fronted Goose *A. albifrons*	3,214
Barnacle Goose *Branta leucopsis*	1,860

Perhaps the greatest surprise was the large number of Greylags shot, around 35,000 birds according to the bag reports. The wintering population in Britain was around 83,000 birds in November 1995 (Carl Mitchell pers. comm.). If the numbers shot are added to the November count, the bag accounted for around 30% of the population at the start of the hunting season. To this should be added hunting mortality on the wintering grounds in Britain and natural mortality to derive total annual mortality. Hence, although the current overall annual mortality is unknown, it would appear that it is higher than the estimate for adult birds given in Fox et al. (1989).

Hunting pressure on the other three species of geese which are hunted in Iceland is much less judging from these figures. This is especially true for the Pink-footed Goose of which only around 5% of the autumn population is shot. This unequal hunting pressure could explain why the Greylag population stopped increasing around 1980 while the population of Pinkfeet has more than doubled over the same period. Based on the wildfowl counts in Britain organised by the Wildfowl and Wetland Trust (WWT), these two species had been increasing at a similar rate prior to 1980.

It should be borne in mind that 1995 was the first time hunters returned bag reports in Iceland so these figures may not be reliable for two reasons. Firstly, the questionnaire form for the bag report was sent to the hunters at the end of the hunting season, so some of the hunters may have relied on memory in their submission of totals. In 1996, they have been sent a small pocket book with their hunting permit to help them keep notes of their bag as they go through the season. Secondly, most of the goose hunting in Iceland is a group activity, usually involving 2-4 hunters together, so there is a danger that some of the goose bags were reported more than once since no instructions were sent to the hunters as to how they should report a joint bag. As the hunters become aquainted with the new licensing system, bag reports should become more reliable. When we have data from more years the reports should become a significant addition to our understanding of the dynamics of the geese populations in Iceland.

This summer a joint expedition from the WWT and The Icelandic Institute of Natural History ringed 440 Pinkfeet and over 100 Greylags with neck-collars or engraved leg-rings, and we hope to increase the ringing effort in Iceland in the coming years. The ringing results will provide us with data for survival estimates and act as a control for the bag-reports.

Hopefully, one day, a similar system will be introduced in Britain and Ireland for reporting the size of the goose bag in these countries, and who knows what surprises we are in for then!!

Arnor Sigfusson, Icelandic Institute of Natural History, Hlemmur 3, P.O. Box 5320, I-125 Reykjavik, Iceland

References:

Fox, A.D., Gitay, H., Owen, M., Salmon, D.G. & Ogilvie, M.A. 1989: Population dynamics of Icelandic - nesting geese, 1960 - 1987. - Ornis Scandinavica 20: 289-297.

Progress report

Progress on the Anatidae Action Plan

Those attending the *Anatidae 2000* meeting in Strasbourg last year will be keen to know that drafting of the Anatidae Action Plan (see Goose RG Bulletin No 6, p.32) is now well under way. Coordination of the work is being carried out by Wetlands International and the Wildfowl & Wetlands Trust (WWT, UK) for the IUCN/Species Survival Commission. The majority of the work focuses on globally threatened Anatidae and this is being carried out by WWT where the contact is Des Callaghan. Paul Rose (Wetlands International) will add information regarding other (non-threatened) species and populations. The finalisation of the Action Plan has been delayed and completion is now expected in late 1996. The Plan will be published by IUCN/SSC in their Action Plan series and should be published before the end of this year.

Janine van Vessem, Wetlands International, Marijkeweg 11, P.O. Box 7002, NL-6700 AC Wageningen, The Netherlands

Annual meeting report

Winter distribution and population size of White-fronted Geese in the Western Palearctic

Since the 1950s, numbers of White-fronted Geese have increased throughout most of western Europe, outside of Britain. Based on this increase, some authors have assumed a general increase in Whitefront numbers throughout the Western Palearctic (e.g. Rutschke 1987, Ebbinge 1991, Kalchreuter 1991, 1994), although changes in abundance in western Europe may not reflect those elsewhere in western Eurasia. In central and southeastern Europe, Turkey and the Caspian Region, Whitefront numbers seem to be decreasing or at best stable (Sterbetz 1982a, b, Dick 1986, 1990, 1992, Madsen 1987, 1991, 1992, Boyd & Pirot 1989, Rose & Scott 1994). This paper summarises existing information from a number of sources to examine the evidence for changes in the overall population size of the White-fronted Goose in the western Palearctic.

Population trends

Information relating to total population size and changes in abundance of western Palearctic Whitefronts is relatively poor, based upon two major sources of information: (i) mid-winter counts and (ii) nesting densities and population estimates from the breeding areas.

Mid-winter counts

Mid-winter counts are available from different parts of the western Palearctic since the 1950s, and from the mid-1960s have been coordinated by Wetlands International (formerly IWRB). Although count coverage and reliability have greatly improved recently (especially in the 1990s), there remain problems with gaps and overlap in the network. However, these counts may give some indications of changes in the status of the species throughout its wintering range. Summing the published (though far from complete) White-fronted Geese totals in western, central and southeastern Europe during the 1950s to 1980s suggest 550,000-850,000 Whitefronts in the western Palearctic (Table 1). Despite improvements in coverage and reliability of counts, there is little indication of a dramatic overall increase. One possible interpretation of the earlier counts could be that the population remained stable, but showed major shifts in geographical distribution from

Table 1. Estimates of White-fronted Goose numbers in the western Palearctic since 1950, based on literature estimates. Literature sources as follows: 1. Bauer & Glutz von Blotzheim (1968), 2. Uspenski (1965), 3. Cramp & Simmons (1977), 4. Timmerman et al. (1976), 5. Phillippona (1972), 6. Lysenko (1990), 7. Pirot & Fox (1990), 8. Scott (1980), 9. Rutschke (1987), 10. Madsen (1991), 11. Madsen (1992), 12. Rose & Taylor (1993), 13. Rose & Scott (1994), 14. Rose (1995), 15 Wetlands International Goose Specialist Group Database (unpublished).

Census period	Baltic-North Sea Group	Pannonic Group	Pontic-Anatolian Group	Total Western Palearctic	Literature source
1950-1959	10,000-50,000	400,000-500,000	?	-*	1,2
1960-1969	50,000-100,000	100,000-150,000	500,000-600,000**	650,000-850,000*	1,3,4,5
1970-1979	200,000-300,000	100,000-175,000	250,000-300,000**	550,000-775,000*	6,7,8,9
1980-1989	ca 400,000	ca 100,000	ca 250,000**	ca 750,000*	10,11
1990-1993	ca 750,000	ca 60,000	ca 600,000	ca 1,400,000	12,13,14,15

* Major gaps in the count coverage

** No counts from The Ukraine and only irregular counts from some other states which now contribute large numbers to the totals

central and eastern Europe into western Europe during the last 40 years (see Table 1). Since the beginning of the 1990s, the international goose count coverage has improved considerably, especially in southeastern Europe. Due to this increased coverage (particularly the participation of The Ukraine and some other states), the total number of Whitefronts counted in the western Palearctic reached a level of ca 1.4 million during the past three seasons (Rose 1995, Wetlands International Goose Specialist Group Database, unpublished). However, these totals still, as in the past, include some duplication (due to cross-border counts, combination of feeding and roosting count and counts spread over two weeks in some areas). Furthermore, population size may vary considerably between years as a result of differences in reproduction rates. Taking these factors into account, although Whitefront numbers counted during the 1990s seem higher than in earlier years, there is little indication of a dramatic increase in the western Palearctic overall. Whitefront numbers in the eastern Palearctic have been decreasing dramatically in recent years (Yokota et al.1982, van der Ven 1987, 1988, Scott & Rose 1989, Perennou et al. 1990).

Nesting densities

Using nesting densities to assess populations size poses considerable problems. Whitefronts breed at very low densities over vast areas, nest at differing densities in different habitats and under different patterns of thaw, and

Table 2. White-fronted Goose nest densities (mean number of nests per square kilometre surveyed, showing range of densities encountered in the seasons quoted in brackets) from two different regions on Taimyr Peninsula since 1960. Data come from several different Russian biologists as well as recent international projects (Ciupin, Kokorev, Zirianov pers. comm., Mooij 1996a & b).

	Pjassina Basin			Taimyra Basin		
Period	*Anser albifrons*	*Anser fabalis*	n (years)	*Anser albifrons*	*Anser fabalis*	n (years)
1960s	1.2 (0.3-1.7)	2.1 (1.7-2.5)	3	2.4 (1.5-4.0)	3.7 (1.5-6.0)	3
1970s	0.2 (0.1-0.2)	0.2 (0.0-0.3)	3	1.3 (1.0-1.5)	1.8 (1.4-2.1)	2
1980s	0.5 (0.2-0.9)	0.1 (0.0-0.2)	3	0.4 (0.1-0.9)	0.2 (0.1-0.6)	6
1990s	0.3 (0.1-1.0)	0.1 (0.0-0.2)	3	0.3 (0.1-1.0)	0.1 (0.1-0.2)	3

recruitment to successful breeding varies greatly between years. Small-scale changes at low densities in peripheral parts of the breeding range may affect the size of the total breeding population far more than large changes in core areas. Access to remote breeding areas by surveyors may restrict census repeatability, before the effects of differences in techniques, observers and analysis are taken into consideration. Hence, the quality of nesting density data are poor, but the existence of data from Russian scientists since the 1950s supplemented by those of international projects since 1989 offer some basis for comparison. In particular, nesting density data are available from the river basins of the Pjassina (western Taimyr) and Taimyra (eastern Taimyr) over several decades (Table 2), although not from identical survey areas in each period. Although these breeding densities on the Taimyr Peninsula probably are not representative of the entire breeding range, there has been no apparent increase between the 1960s and 1990s, and no repeat of the high densities found in the 1960s.

Flint & Krivenko (1990) reported stable trends in summering Whitefront numbers in Russia (total Eurasian population 1.3 million in the late 1980s) and that waterfowl numbers in the forest-tundra and tundra regions of the former USSR territories were two-thirds of those in the 1940s, although numbers had been stable since the 1960s. Krivenko (1994) estimated the total Eurasian population at 1.0 million, based on recent monitoring projects, perhaps the results of continuing declines in the eastern Palearctic and stable numbers in the west.

Table 3. Estimates of White-fronted Goose numbers in western Palearctic breeding areas, after Rogacheva (1992), Mineyev (1995) and Mooij (1996a).

Breeding area	Estimates size of breeding range in km^2	Estimated numbers of White-fronted Geese	Crude mean total	Source	Crude mean breeding density in nests km^{-1}
Kanin-Vaygach Island	120,000	100,000-180,000	140,000	Mineyev (1995)	0.18
Yamal-Gydan	250,000	250,000-300,000	275,000	Mooij (1996a)	0.17
Taimyr	400,000	400,000-450,000	425,000	Rogecheva (1992)	0.16
Western Palearctic	770,000	750,000-930,000	840,000	ca 750,000	0.17

Mineyev (1995) and Ryabitsev (1995) reported increases in the western part of the western Palearctic, but Kalyakin (1995) recorded no clear tendency in western Siberian breeding areas. Rogacheva (1992) stated that the Taimyr Whitefront population underwent a sharp decline after the 1940s, but has been stable since the 1980s (albeit at a lower level, ca 400,000-450,000 birds).

Based on estimates by Mineyev (1995) for the European breeding range and Rogacheva (1992) for the Taimyr Peninsula, the relative numbers in these two parts of the summering range and an annual recruitment rate of 30%, the western Palearctic Whitefront population during the 1980s was estimated to be 750,000-930,000 individuals. Of these, ca 100,000-180,000 occurred between the Kanin Peninsula and Vaygach Island, ca 250,000-300,000 on the Yamal and Gydan Peninsulas and 400,000-450,000 on the Taimyr Peninsula (see Mooij 1996a for methods used to derive these data, Table 3).

In the eastern Palearctic, clear decreases in Whitefront numbers have been reported by Degtyarev (1995), Syreoechovski Sr. (1995) and Syreoechovski Jr. (1995). Waterfowl numbers in eastern Siberia (including geese) in the early 1990s were estimated by Krivenko (1994) to be half those of the 1980s (Flint & Krivenko 1990).

Ringing recoveries

Ninety Whitefronts were ringed with metal rings between 1966 and 1970 in the Pura River Basin in western Taimyr and 17 (19%) had been recovered shot during autumn and winter by the end of 1975 (Borzhonov 1975, Fig. 1).

Since 1989, several international expeditions have captured and marked moulting Whitefronts on Taimyr. Out of 838 birds marked between 1989 and 1992 in the Pjassina Delta (western Taimyr) and in the Taimyra River Basin (eastern Taimyr), 112 different individuals (13%) have been recorded on 200 occasions, including 30 birds (3.6%) recorded shot during autumn and winter (Mooij 1996a & b, Mooij et al. in prep., Figs. 1 and 2). The differences in the distribution of ringing recoveries between the ringing programme of Borzhonov and the recent programmes could suggest a change in migration routes and wintering distribution between the two studies. Results from the recent marking programme showed that Whitefronts marked on the Taimyr Peninsula were recovered in wintering areas in western and eastern Europe, in southwest Asia, and in wintering sites associated with the 'Anatolian' and 'Caspian' groups (see Figure 2), areas thought previously to be of separate wintering provenance. This suggests that the units of wintering Whitefronts in the western Palearctic are not as clearly separated as previously considered by many authors (e.g. Bauer & Glutz von Blotzheim 1968, Phillipona 1972, Lebret et al. 1976, Timmerman 1976, Timmerman et al. 1976, Cramp & Simmons 1977, Rutschke 1987).

Although it is known that arctic moulting aggregations of geese draw from large areas, the moult concentrations of Whitefronts on the Taimyr Peninsula (especially in the eastern part) mainly seem to be composed of birds of the local population (Rogacheva 1992, Hötker 1995, Kokorev & Zyrianov

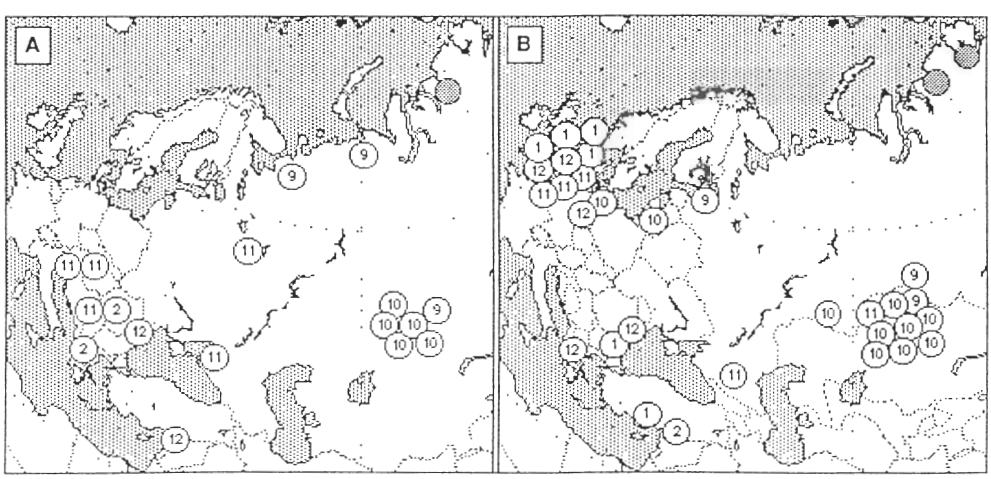

Figure 1. Autumn and winter shot recoveries of White-fronted Geese ringed on the Taimyr Peninsula (A; left) with metal rings 1966-1970 (Borzhonov 1975) and (B; right) with metal and coloured leg-rings and neck collars 1989-1992 (from Mooij et al. in prep).

pers. comm.). If this is true, the results of the recent Whitefront marking programmes on the Taimyr Peninsula indicate that the Whitefronts from one breeding/moulting area distribute over many wintering sites in winter. There is some evidence to suggest that pair bonds are established away from the breeding grounds (van Impe 1978, Johnsgard 1978, Rutschke 1987), hence assortative mating amongst young birds of differing summering provenence would ensure outbreeding.

Discussion

It is clear that the data available on historical numbers and distribution of Whitefronts in the western Palearctic are insufficient to fully explain the known changes in abundance in western Europe in terms of differential survival/fecundity or shifts in wintering distribution or a combination of these factors. It appears from the inadequate census data that there may have been little change in the overall numbers wintering in the western Palearctic since the 1950s, but that there have been increases in western Europe coincident with declines in some parts of the wintering range elsewhere. The fact that birds from one breeding/moulting area were recovered throughout the wintering range of the population suggests that there is

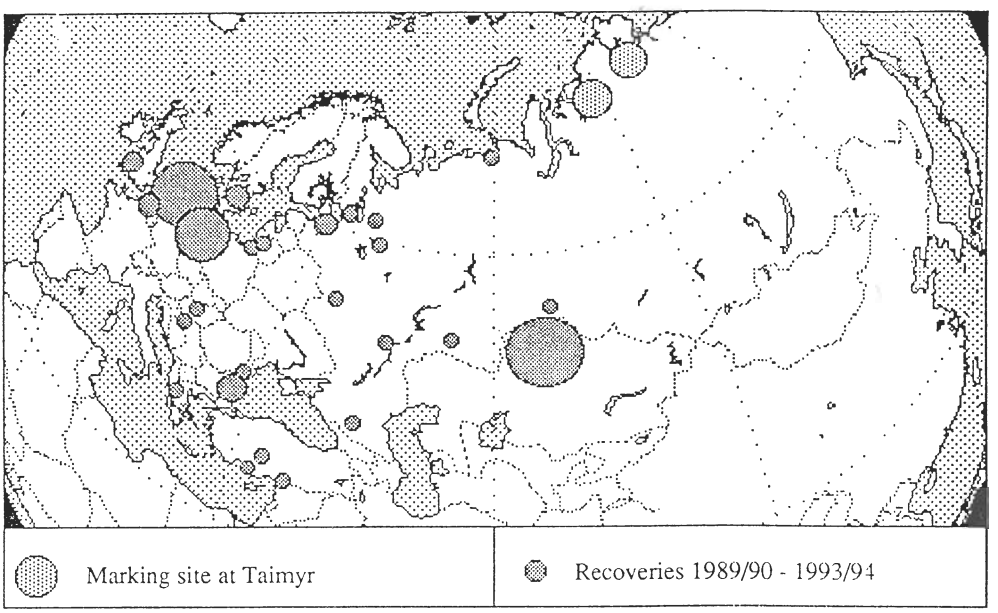

Figure 2. Resightings and recoveries reported from the winters 1989/90-1993/94 inclusive of leg-ringed and collared White-fronted Geese captured on the Taimyr Peninsula during summers 1989-1992 (from Mooij et al. in prep.).

considerable winter dispersal, and that changes in immigration/emigration patterns on the wintering quarters could play a role in the recent changes in wintering distribution and abundance. Although there are few data to support the thesis that a major shift of wintering Whitefronts has taken place within the western Palearctic, information to support the theory that numbers have increased in the western Palearctic as a whole is equally scant. In management terms, it may seem better to adopt the precautionary principal, and assume that there has been no significant increase in the numbers of this species in the western Palearctic until more information is forthcoming to establish this is not the case.

Unfortunately, in the absence of extensive ringing information and reliable historical count data, we shall probably never know the causes of the proximate and ultimate changes in numbers in different parts of the wintering range, but the information presented here does at least present some alternative explanations to current hypotheses. It seems possible that the increase in numbers of Whitefronts wintering in western Europe could be explained by shifts in wintering geese from other western Palearctic wintering sites. However, our inability to offer a definitive explanation for the known changes in abundance in western Europe does underline the need to continue to improve the count coverage and quality of information supplied to the goose database as well as maintain ringing efforts (especially in the moulting/breeding areas) in order to understand present patterns and future changes in this important species.

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Annual meeting report

Some results from long-term monitoring of wintering geese in Oostkustpolders, Flanders, Belgium

Since 1959/60, regular counts of wild geese in the wintering area near Damme have been carried out. Over the past 35 years, several interesting changes have occurred in the numbers and distribution of White-fronted and Pink-footed Geese, breeding in Russia and Svalbard respectively. The Oostkustpolders north of Bruges have developed into one of the southern-most wintering areas for both populations (Meire & Kuijken 1991).

Both species increased from annual maxima of ca.2,000 Whitefronts and ca.300 Pinkfeet between the early 1960s and the mid-1970s (Fig. 1). This may have been the result of several factors:

- The creation of a local shooting-free area for the geese near Damme (from 1960-1968 on a private basis, with official regulation during 1968-1980). Since winter 1980/81, there has been a complete ban on shooting geese in Belgium.

- The hard winter of 1962/63 when almost all the geese of both species in western Europe moved to France, many passing along the Belgian coastal areas with their suitable grassland feeding areas. This coincided with exceptional shooting bans during the cold spell in many countries.

- The loss of wintering grounds at Zeeuws-Vlaanderen (in the province of Zeeland in The Netherlands) due to recreation and agricultural changes.

Before the mid-1970s, most geese remained near Damme; subsequently, both species have occurred in greater numbers elsewhere in the polder region (see Figure 1). Both species increased in overall numbers in western Europe during the period 1960-1975 (50,000-130,000 Whitefronts and 9,000-19,000 Pinkfeet). The hard winter of 1978/79 (again associated with hard-weather shooting bans in several countries) also marked another change in distribution patterns and wintering numbers in Flanders (see Figure 1). Pinkfoot numbers in particular increased dramatically after that winter. As a result of the national goose hunting ban established in 1980/81, geese were able to occupy available feeding areas outside Damme, where formerly the establishment of wintering groups had been disrupted by shoot

ing, although exploratory forays by geese in irregular groups was already occurring in earlier years. It is difficult to assess the influence of the subsequent hard winters of the early 1980s on long term trends: peak numbers in

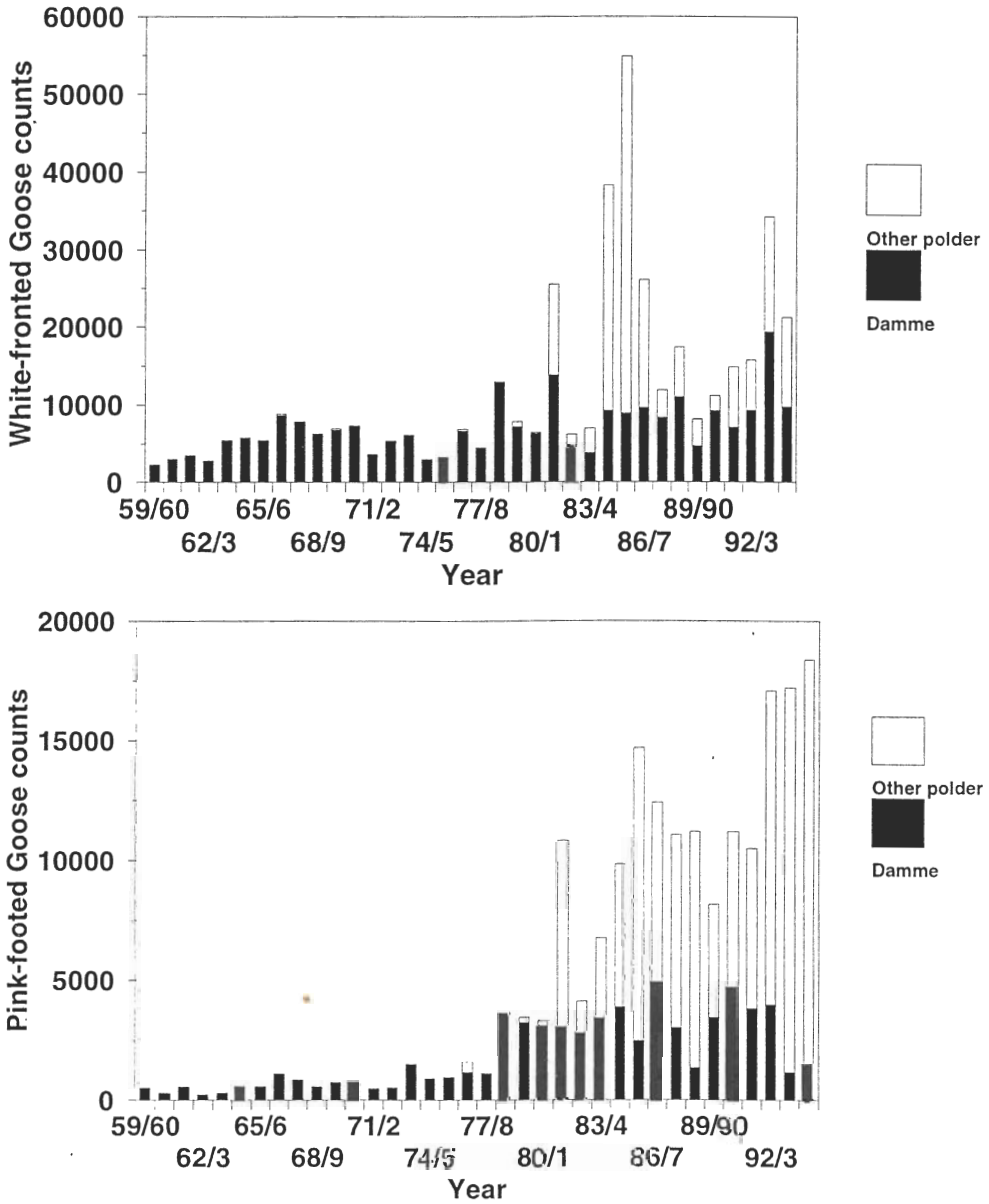

Figure 1. Changes in the numbers of White-fronted Geese (upper) and Pink-footed Geese (lower) wintering in the Damme and other Belgian polder areas, 1959/60 to 1994/95.

1985/86 exceeded 50,000 Whitefronts and 15,000 Pinkfeet. In the last three winters, maxima for both species have been 25,000 and 17,500 respectively.

Despite the sharp increase in numbers and the expansion of feeding grounds into other polder complexes, the number of goose-days spent in Damme has remained almost constant. This suggests that the carrying capacity has been reached and that this traditional haunt cannot sustain higher grazing pressure than is currently the case, not even with increasing numbers of wintering geese. Pinkfeet now arrive earlier and more or less avoid Damme, where Whitefronts predominate and peak in January.

The further increase in Pinkfoot numbers since 1981/82 to over 20,000 birds currently could be the combined effect of the shooting ban and the explorative discovery of the area during the cold winters described, but it has occurred during a period when the total Svalbard population has increased to 35,000 birds. The Oostkustpolders now support well over 50% of the population.

There remains no extensive evidence that all of these birds belong to the Svalbard population (no hunting means virtually no ringing recoveries!). Since a few small flocks of Pinkfeet have been seen flying in off the sea to arrive at the Belgian coast, it is important to present preliminary analyses of resighting data from Danish neck-collared birds in Flanders. Since 1990, J. Madsen (NERI, Denmark) has marked almost 500 geese during spring migration with individually coded blue neck-bands. Intensive efforts to resight

Table 1. Numbers of marked and resighted neck-ringed Pink-footed Geese seen in the Oostkustpolders, Flanders, Belgium, 1990/91-1994/95.

Danish ringing		Number of individuals recorded in Flanders						
Ringing period (number caught)		90/91	91/92	92/93	93/94	94/95	Cumulative 90-95	Cumulative %
Spring 1990	(98)	27	16	35	28	22	55	56.1
Spring 1991	(165)		50	56	53	66	112	67.9
Spring 1992	(153)			59	52	66	98	64.9
Spring 1993	(3)				1	2	2	52.9
Spring 1994	(99)					43	43	
Totals 518	(518)	27	66	150	134	199	310	59.8

these birds on the Flemish wintering grounds have resulted in interesting results (Table 1).

If we ignore the biases involved in the methods and observations, and if we do not take into account annual mortality and disappearance of rings, a cumulative average of almost 60% of each of the ringed cohorts from 1990-1994 have been resighted in Flanders. Based on this, we might expect that more than 80% of the Svalbard birds spend at least one winter in Flanders. Up to 40% of birds were resighted there in their first winter after marking, confirming that the winter maxima in Flanders represents just over 50% of the continental Pinkfoot population based on field counts.

There have been occasional observations of neck-banded birds from the Greenlandic/Icelandic population of Pink-footed Geese from mainland Europe and vice versa (J. Madsen and C. Mitchell, pers. comm., and own data). However, the data summarised here suggest that the increase in the continental population does not seem to be the result of major shifts in wintering grounds of birds breeding in Iceland and Greenland (wintering in Britain), a population which now exceeds 200,000 birds. Even if the North Sea proved no impediment to full intermixing of Pink-footed Geese from both breeding areas, together totalling over 250,000 geese, the wintering areas of Flanders would still support about 7% of the world population - in excess of the Ramsar criterion of international importance.

Acknowledgements

The authors wish to thank Christine Verscheure for enthusiastic support and assistance with intensive fieldwork and for coordination of the neck-band record database; many thanks to Jesper Madsen for communication of unpublished information and stimulating discussions.

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Annual meeting report

The status of the Greylag Goose *Anser anser* in Flanders, Belgium

Many attempts have been made to introduce artificial breeding populations of Greylag Geese into the Low Countries, generally in the hope of establishing feral populations. In the following account, data are presented on the current status of free-flying Greylag Geese in the northwestern part of Belgium, with emphasis on numbers, origin and phenology, as well as potential management conflicts caused by the presence of these geese.

Breeding populations

At least part of the current breeding populations originated from the birds introduced to the Zwin reserve (Knokke) in the mid 1950s (originally *A. a. rubrirostris*). After a few years the original feral group attracted wild birds on passage and became itself migratory. So this population gradually lost its racial characteristics through interbreeding with wild birds throughout the west European flyway. In the meantime, during the course of more than two decades, the hybridization caused the appearance of many heavy and red-billed individuals throughout western Europe.

More recently, settlement of small numbers of wild birds has occurred along the Dutch border in the northern part of East Flanders (in the polders and brackish creeks near St. Laureins and Assende and in the Maas valley (Kessenich, Stokkem, Gestingen, province of Limburg). Some of these populations remain in the breeding areas during moult (especially at Zwin and Assenede). At a few other places, escapes resulted in small local populations (Woumen, Bornem) where hybridization with tame geese has even been recorded.

Staging migratory birds

Passage of Greylags over Belgium is common from mid-September to mid-November, returning from late January to mid-April (mainly over western parts of the Flemish region).

However, there are very few sites used regularly during migration and hardly any birds are seen on the ground in autumn (when grassland is favoured). In spring, small flocks may remain for short periods in February-April, mainly in the coastal polder areas, with some along rivers.

Wintering numbers

The founding Zwin population has not attracted large wintering numbers (up to 800 geese), but there have been important increases along the Lower Scheldt river valley near Antwerp since winter 1993/94 (up to 3,500 birds). Here, the feeding grounds are the brackish tidal marshes on the Belgian side of the river opposite the Land van Saaftinge in the Netherlands. These are protected nature reserves, designated Ramsar sites and Special Protection Areas. Increasingly, many grey geese using the Saaftinge area as a nocturnal roost (including White-fronted and Bean Geese as well as Greylags) have flown out to Belgian feeding areas by day.

Conflicts with agriculture

Farmers have long been used to the presence of wintering Whitefronts and Pinkfeet in the polder areas north of Bruges, as well as flocks of Whitefronts and Bean Geese in the Lower Scheldt polder area and a few sites along the Dutch border (e.g. Assenede). However, the year-round presence of flocks of up to 250 Greylags has caused some concern and has led to complaints of damage in fields. This is supported by hunters who wish to gain a re-opening of the shooting season on this species in the region. At present, the only exception to the overall hunting ban on geese in Belgium is a temporary shoot in the Municipality of Knokke (in the Zwin area) in order to reduce farmers' complaints. However, this measure does not seem to have proved effective, because the lack of hunting interest has resulted in no significant kill, birds have remained relatively tame and have proved difficult to scare.

Conflicts with nature conservation

In recent years almost every small wetland nature reserve has a growing colony of Greylag Geese. Increased breeding numbers on some vulnerable small marshes can disturb important vegetation types and processes which

take priority in terms of nature conservation management. For this reason, nests are disturbed and eggs removed to reduce numbers in some critical localities. With increasing numbers, and long duration of stay after breeding, grazing pressure from moulting adults and family groups can cause serious overgrazing of rarer brackish or floating marsh vegetation types.

In conclusion, monitoring of the trends in numbers and breeding distribution of Greylag Geese in Flanders is needed in coming years for a number of reasons. It is important to understand the differences in behaviour between wild and feral birds and their influence on the development of moulting areas and migration patterns along the western European flyway.

Local conflicts with agriculture and nature conservation interests requires cautious management in order not to undermine the shooting ban on geese which has been enforced for over 15 years and which has resulted in such favourable conditions for wintering geese in Flanders.

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Announcement

Wetlands International Goose Specialist Group Meeting at Martin Mere, United Kingdom, 16-19 December 1996

As announced in the last Bulletin (GSG Bulletin 7: 50) the second Wetlands International Goose Specialist Group meeting is to be held at Martin Mere, in northwest England 16-19 December 1996. The gathering will kindly be hosted at the Wildfowl & Wetlands Trust (WWT) centre there, organised locally by WWT staff.

The theme for the meeting will be 'Use of individual marking techniques in the study of goose populations'. We wish for a very international gathering and welcome contributions, both spoken and posters, which fit the topic. Subjects for discussion will include the effects of marking techniques on behaviour, mortality, breeding success, etc, the effectiveness of different marking techniques in terms of reading error and on the results of marking programmes and their application. Speakers will include representatives from North America, specially invited by the organiser. Those who have announced their intentions to come include Richard Malecki, Ray Alisauskas and Dick Kerbes, so there will be excellent representation from the New World perspective to complement a host of European speakers. The Japanese Association for Wild Geese Protection will send a delegation of four including the editor of the Goose Study Masayuki Kurechi.

Martin Mere is an excellent locality, created artificially by WWT, it is one of northern England's most important wetlands, supporting up to 20,000 roosting Pink footed Geese as well as up to 20,000 Wigeon and over 1,000 migratory swans. Booking forms have been circulated, but if you wish to attend and have yet to register, contact (as soon as possible):

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Uniter Kingdom
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e-mail Carl.Mitchell@wwt.org.uk.

Announcement

Meeting of Goose Ecology Study Group of the Deutsche Ornithologen-Gesellschaft, Lower Saxony, 7-9 February 1997

Further to the announcement of the above group (GSG Bulletin 7: 47, we confirm that Thomas Brandt has invited their first meeting to take place close to the Ökologische Schutzstation Steinhuder Meer in Lower Saxony, based at the Mardorf/Landkreis Hannover Youth Hostel on 7-9 February 1997. Details will be distributed in November 1996, but for more information, please contact

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(please note there was error in the e-mail address published in the last Bulletin for which we apologise).

Announcement

NAAG'98: the Ninth North American Arctic Goose Conference/Workshop

We have just received notification that NAAG'98 will be held in Victoria, British Columbia, Canada from 7-10 January 1998. The objective of the conference/workshop is to provide a forum for discussion of important research and management issues for Arctic Goose populations throughout the world. Between 200 and 300 biologists from North America, Europe and Asia are expected to attend. If you are interested in receiving further information or giving an oral or poster presentation at NAAG'98 (abstracts will not be solicited until sometime in 1997), please send your name, address, telephone number, fax number and e-mail address to:

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e-mail sean.boyd@ec.gc.ca.

Recent Goose References

By popular demand, we have included another list of references concerning geese. This list is a mixture of articles gleaned from the Scientific Citation Index for 1994, 1995 and for January-July 1996, supplemented by the contents of the journal Wildfowl and an ad hoc mixture of pieces which the Editorial Office may have stumbled over. For this reason, it is not especially exhaustive nor constant in its coverage. We again appeal for grey literature and unpublished (but publically available) reports so that everyone may be aware of existing material.

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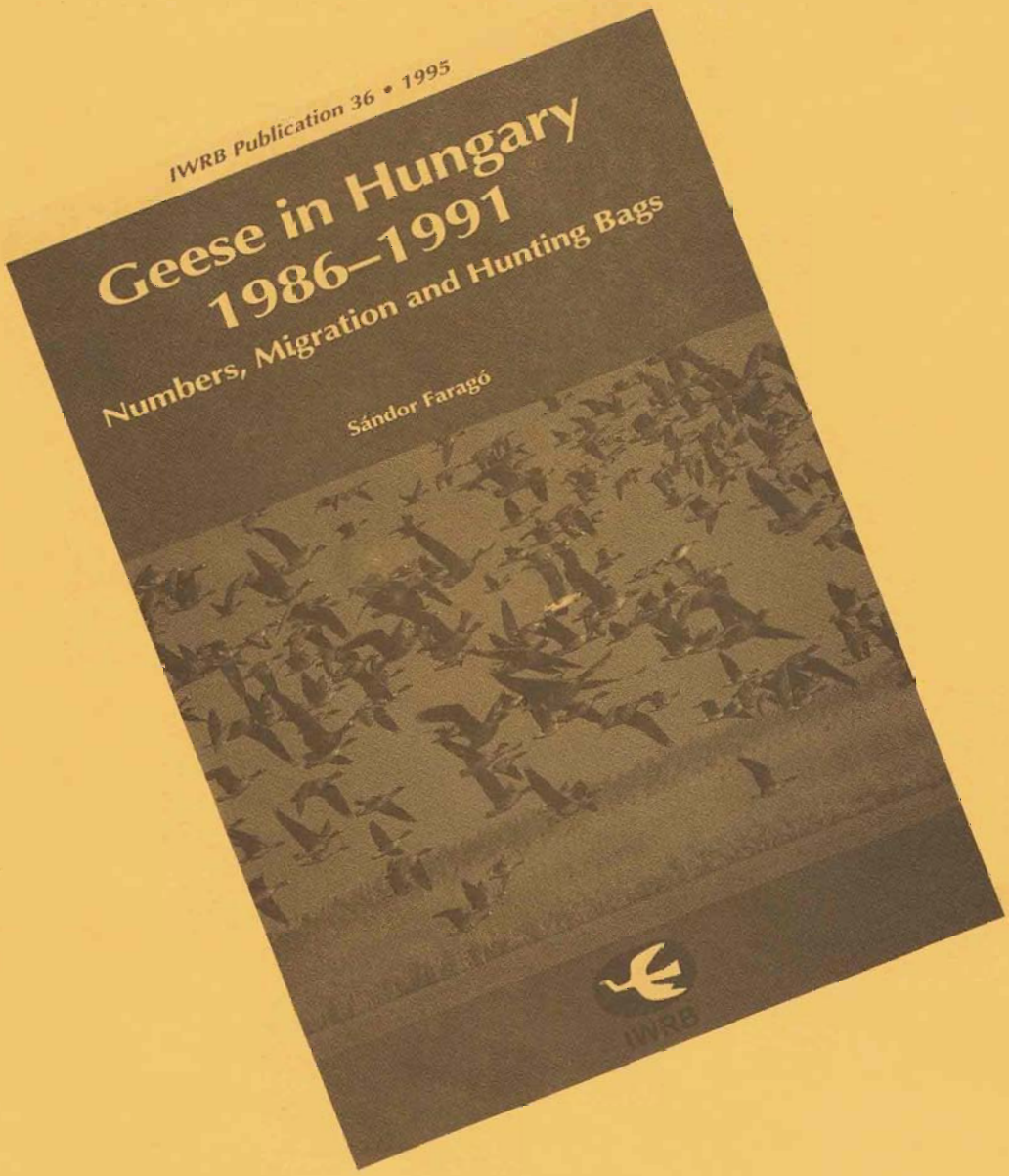

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