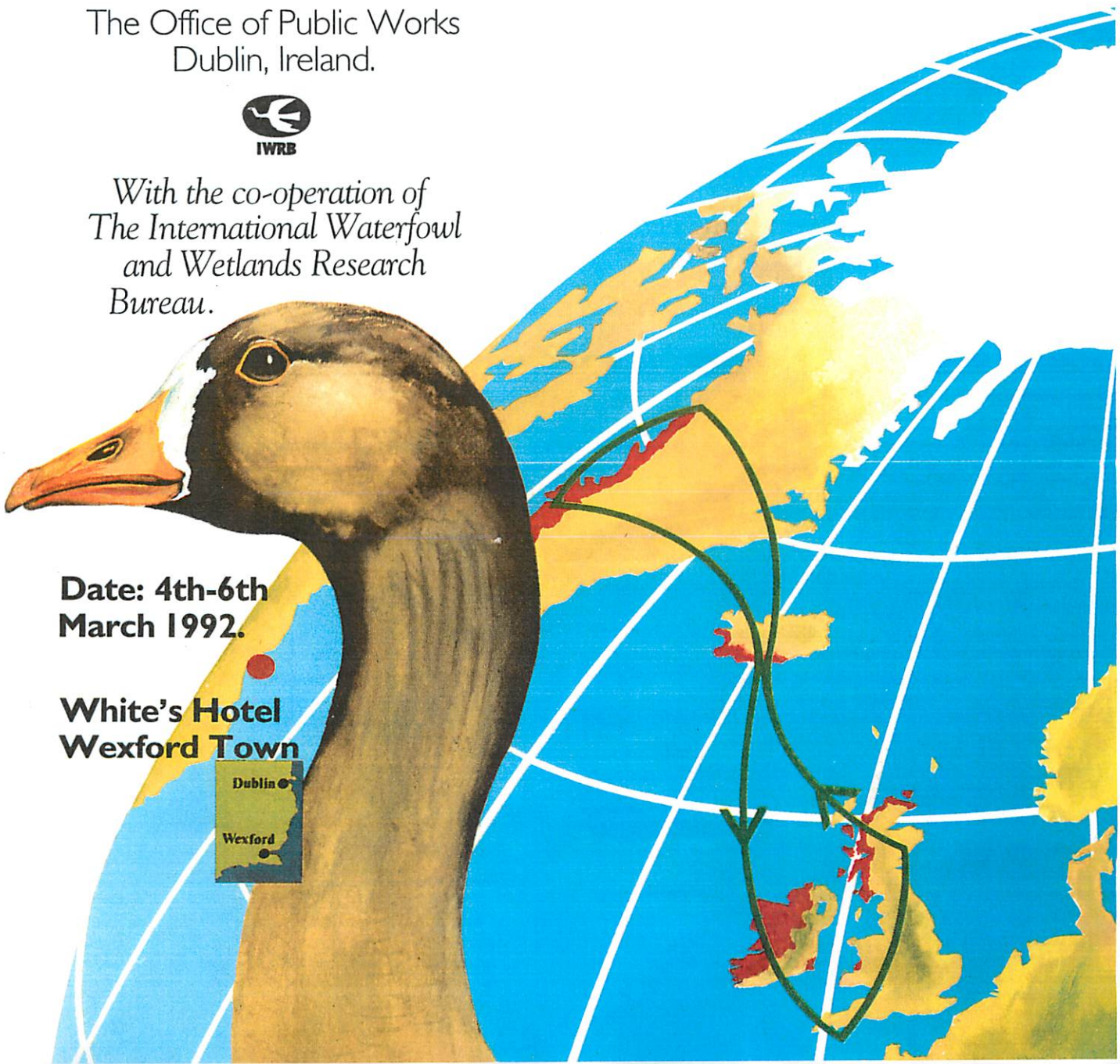
THE GREENLAND WHITE-FRONTED GOOSE WORKSHOP

Convened by the National Parks and Wildlife Service.

The Office of Public Works
Dublin, Ireland.

IWRB

With the co-operation of The International Waterfowl and Wetlands Research Bureau.



Date: 4th-6th March 1992.

White's Hotel
Wexford Town

MESSAGE FROM MINISTER OF STATE

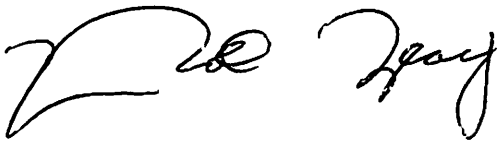
As Minister of State with responsibility for the National Parks & Wildlife Service of the Office of Public Works, I am very pleased to have the opportunity to extend a warm welcome to the representatives of the Governments of Greenland, Iceland and the United Kingdom, to the representatives of the European Commission and to the experts and representatives of support agencies and national and international non-government organisations who have assembled here in Wexford, to discuss conservation strategies for the Greenland White-fronted Goose.

Ireland's concern for the well being of this species stems from the fact that this country plays host to approximately 50% of the world population from October to April each year. The majority of these birds are to be found feeding on the Sloblands of Wexford by day and roosting at night in Wexford Harbour. Hence the suitability of Wexford as a venue for this Workshop.

The migratory route for these birds extends from the breeding grounds in Greenland, to the staging areas of Iceland and on to the wintering grounds in Ireland and the United Kingdom. The conservation of the migratory species therefore requires co-operation at an International level. A forum was needed to bring together the issues which arise along the migratory route and at the Ramsar Convention Conference in Montreux in 1990, Ireland offered to host a Workshop to consider and discuss the conservation needs.

I am confident that the Workshop deliberations here in Wexford will represent an important and valuable contribution to long-term co-operative conservation plans for this vulnerable goose population.

I wish you all fruitful and rewarding discussions at the Workshop and I hope very much that your visit to Ireland will provide you with an opportunity to enjoy the many attractions which our country has to offer.



NOEL TREACY, T.D.
MINISTER OF STATE

PROGRAMME

TUESDAY 3 MARCH

- Registration from 4 p.m. onwards

- Meeting of chairpersons (co-ordinated by **J. Wilson, & J. van Vessem**)

WEDNESDAY 4 MARCH

Session 1: Chaired by Ireland (**M. Canny & M. Neff**)

0930-0945	Introduction of Minister (**Commissioner B. Scully**) Address by **Minister Noel Treacy**
0945-1000	Structure & Functioning of Workshop (**G. Boere**)
1000-1100	Overview of Numbers, Trends, Distribution and Habitats (**T. Fox**)
1100-1130	Coffee/Tea break

Reports from the Range States

1130-1150	Greenland (**P. Nielsen**)
1150-1210	Iceland (**A. Gardarsson and A. Petersen**)
1210-1230	Britain (**D. Stroud**)
1230-1250	Ireland and Northern Ireland (**J. Wilson**)
1250-1300	General Discussion
1300-1430	Lunch

Session 2: Chaired by Iceland (**A. Gardarsson & A. Petersen**)

1430-1500	Need for International Co-Operation (**J. van Vessem**)
1500-1530	North American Experience (**H. Boyd**)
1530-1600	Coffee/Tea break
1600-1630	Effects of Habitat Loss and Disturbance (**D. Norriss**)
1630-1700	Greenland White-fronted Geese and the Wexford Slobs (**O. Merne**)
1700-1730	Principles of the NCC Management Planning System (**M. Alexander**)
1730-1745	Conclusions (**J. Wilson**)
1930	Dinner (hosted by Minister Noel Treacy) Video on Greenland White-fronted Geese in Wexford

THURSDAY 5 MARCH

Session 3: Chaired by Denmark & Greenland (**P-U. Jepsen & P. Nielsen**)

0900-1000	Introduction of the Draft Greenland White-fronted Goose International Conservation Plan (**D. Stroud**)
1000-1030	Coffee/Tea break
1030-1230	Structured discussion on the Executive Summary of the Greenland White-fronted Goose International Conservation Plan (Introduction: **G. Boere**; panel: **P-U. Jepsen, P. Nielsen and D. Stroud**)
1230-1400	Lunch
1400-1800	Excursion to Wexford North Slob inclusive of coffee at the Wexford Wildfowl Reserve at 1600 h, followed by a talk on the "Management of the Wexford Flock of Greenland White-fronted Geese" (**P. Warner**)

FRIDAY 6 MARCH

Session 4: Chaired by United Kingdom (**R. Hepworth & M. Pienkowski**)

0900-0930	International Legal Instruments (**S. Biber-Klemm**)
0930-0950	Summary of Discussions on Draft Greenland White-fronted Goose International Conservation Plan (**M. Pienkowski**)
0950-1030	Discussion on Draft Declaration (panel: **G. Boere, M. Canny, R. Hepworth, M. Pienkowski, Commissioner B. Scully**)
1030-1100	Coffee/Tea break
1100-1200	Discussion on Future Objectives (panel: **G. Boere, M. Canny, R. Hepworth, M. Pienkowski, Commissioner B. Scully**)
1200-1230	Conclusions and closure of the Workshop (**Commissioner B. Scully**)
1230-1400	Lunch

Afternoon:

1415-1800	Excursion to Wexford South Slob, Lady's Island Lake and Tacumshane
1430-1730	Closed meeting for the Representatives of the Range States regarding follow up and future planning (chaired by **Commissioner B. Scully**).

ABSTRACTS

The Greenland White-fronted Goose

Overview of Numbers, Trends, Distribution and Habitats

Tony Fox,
The Wildfowl and Wetlands Trust, Slimbridge.
Gloucestershire, GL2 7BT, United Kingdom

Abstract

The Greenland White-fronted Goose *Anser albifrons flavirostris* is the most morphologically distinct race of the circum-polar Greater White-fronted Goose *Anser albifrons*. The population breeds in West Greenland and migrates in autumn and spring through Iceland to winter in Britain and Ireland. On the wintering grounds, the northern and western distribution reflects the distribution of patterned peatland, the traditional habitat of the geese. Indeed, the goose has become an important environmental indicator of undamaged oceanic mire and is now an important symbol of wetland conservation in Britain and Ireland.

The population size is small compared to most arctic-nesting geese, being the third rarest goose in the world. Numbers fell from 17,500-23,000 in the 1950s to 14,300-16,600 in the late 1970s giving extreme concern for the population. It seems likely that wetland habitat loss and hunting may have been involved with this decline.

Since 1982, the population has been protected in Britain and in Ireland, with the exception of short, regulated seasons in Co. Wexford only in 1985/86 and 1989/90, whilst protection was effectively conferred on the breeding grounds in Greenland from 1985. The race remains a quarry species in Iceland during autumn migration (although protected there in spring) and in Wales, where one of the two remaining flocks is protected by a voluntary shooting ban. Under this protection, the population has recovered to number 29,400, although this increase is supported largely by increases at the two most important wintering sites, namely Wexford Slobs (south east Ireland) and Islay (Inner Hebrides, Scotland). Many of the smaller flocks show stability or declines in numbers and hence give cause for concern.

Analysis of patterns of recruitment shows that the recovery under protection did not result from improved breeding success, but the inverse relationship between hunting mortality and annual survival amongst birds wintering at Wexford suggests that hunting mortality is additive in this population.

Programmes of site safeguard have been implemented on the wintering grounds and in Greenland, where up to 30% of the population now breed in areas declared Ramsar sites of International Importance. Although basic information relating to distribution and abundance, behaviour and ecology were lacking during the period of severe decline, more recent research has brought a better understanding of many of these aspects of the population.

However, the small world population, limited geographical range, low productivity and high site fidelity are all features of the population which give cause for concern regarding its long-term survival. There remains considerable scope for co-ordination in research, site-safeguard and conservation programmes throughout all the range states involved in the flyway of the Greenland White-fronted Goose and it is hoped that the workshop will break new ground in structuring an International Conservation Plan for this important goose population.

The Need for International Co-Operation

Janine van Vessem,
IWRB,
Slimbridge, United Kingdom.

Abstract

Most waterbird species are migratory, travelling long distances and crossing many borders in order to complete their annual cycle. Throughout their range they are dependant on networks of wetlands and specific habitats for breeding, wintering and staging areas.

The disturbance, degradation and loss of wetlands and other habitats essential during their annual cycle, as a result of human activities, are the major threats to migratory waterbirds. In addition, many waterbird species are hunted throughout the flyway. Addressing these pressures can only be achieved by international co-operation in research, monitoring and conservation action (legislation, management, etc.). The destruction of habitats or unregulated hunting in a single Range State may influence the entire population throughout the flyway. Therefore, it is essential and at the same time a great challenge to design and implement integrated conservation plans at flyway level.

In Europe, the Greenland White-fronted Goose International Conservation Plan is the first example of such a plan. The implementation of this Conservation Plan is only feasible by co-operation amongst the Range States within the flyway of the Greenland White-fronted Goose.

The implementation of the Greenland White-fronted Goose International Conservation Plan should be the start of a whole series of conservation plans of this kind to be developed within the Western Palearctic flyway. IWRB proposes to act as a technical co-ordinating organisation, in order to stimulate and develop similar initiatives which, hopefully, can be implemented through the future Western Palearctic Waterfowl Agreement under the Bonn Convention.

The North American Experience

Hugh Boyd,
Canadian Wildlife Service,
Environment Canada,
Ottawa, Ontario, Canada K1A OH3

Abstract

Canada and the USA signed the North American Waterfowl Management Plan (NAWMP) in May 1986, after 8 years of preparatory work. It was sub-titled "A Strategy for Co-operation", and included no commitments to fund any of the activities it called for. Funding came later. There are at least 20 Goose Management Plans, most of them prepared before 1986, which now come under the umbrella of NAWMP. These population-management plans, which may be of help in preparing a plan for the Greenland White-fronted Goose, were drafted by biologists, who were enthusiasts. They all call for collecting more and better data, and for more money to be spent. Collectively, they would need more money to carry them out than is in the entire waterfowl budgets of the federal, state and provincial agencies who are expected to implement them and many other waterfowl and wetland management plans. In preparing a plan it is very important to be realistic about needs, costs and competition for funds. You need administrative commitments to an Action Plan, which should be attached to, even if it cannot be part of, the Management Plan.

Effects of Habitat Loss and Disturbance

on

Wintering Flocks of Greenland White-fronted Geese

David Norriss,
National Parks & Wildlife Service,
The Office of Public Works,
51 St. Stephen's Green, Dublin 2,
Ireland.

Abstract

Individual flocks of Greenland White-fronted Geese show a strong attachment to particular wintering ranges and their winter distribution has remained virtually unchanged since first documented in the 1970s. Because of this traditionalism, few flocks have had the opportunity to utilise the large open farmland nowadays favoured by many other goose species. Those farmland sites that are available are generally small and enclosed, while loss of traditional wetland sites has been severe. Current feeding ranges are therefore small and fragmented, containing 2-35 scattered feeding sites with a median size of less than 10 ha.

Several lines of circumstantial evidence suggest that range losses and disturbance have important energetic consequences for Greenland White-fronts. (1) Flock size trends and (2) mean brood size are both positively related to individual range sizes. (3) Within flocks, site use is negatively correlated with disturbance pressures. (4) When range size variation is taken into account, a flock's mean brood size score is also significantly related to feeding habitat. Largest broods are found in farmland flocks, the smallest in bogland flocks. This feature is of importance since habitat loss and disturbance pressures restrict the range of feeding habitats and seasonally - preferred foods.

Geese have a low digestive efficiency and spend most of their active day in winter feeding. To compensate, Greenland White-fronts on grass must feed for 60-70% of the time. A feeding study by E. Mayes showed that in December and January it is unlikely that Greenland White-fronts, even on the largest ranges, can maintain an energy intake surplus to requirements by grazing alone. Our data suggest that small ranges may provide marginal wintering habitat in terms of an increased mid-winter energy deficit and a delayed onset or reduced rate of weight gain in spring. Overwinter condition may in turn affect flock size trends through mortality and rates of between-flock movement and may affect the number of eggs laid by the female on the breeding grounds.

At this stage we require data on how the presumed energetic disadvantages of small ranges operate. In particular the relative energy costs related to the manageable disturbance component and to range size are needed as they have implications for the management of small flocks and the maintenance of a dispersed winter distribution.

Greenland White-fronted Geese and the Wexford Slobs

Oscar J. Merne,
National Parks & Wildlife Service,
Office of Public Works,
51 St. Stephen's Green, Dublin 2,
Ireland.

Abstract

Creation of Slobs and Agricultural Development

Prior to 1850 the area now known as the Wexford Slobs was shallow intertidal bays on the north and south sides of Wexford Harbour, which is the estuary of the River Slaney. The North and South Slobs were created in the 1850s by empoldering the mudflats. Each Slob covers c.1,000 ha. For the first hundred years of their existence drainage was inefficient, and most of the land produced poor quality Juncus - infested grassland, used primarily for summer grazing and some hay-cutting. Small areas which were better drained produced spring cereals and occasionally small amounts of root crops, principally turnips for sheep fodder.

In the 1950s and 1960s greatly improved drainage led to considerable agricultural intensification. On the South Slob improved grassland was managed for production of grassmeal pellets, while winter and spring cereals (wheat and barley) were grown over larger areas. Later, oil-seed rape and sugar-beet were extensively grown, grassmeal production was discontinued, and sheep were introduced to graze the grass and feed on sugar-beet tops. On the North Slob from the mid-1960s onwards all the grassland was reseeded, winter and spring cereal growing increased, sugar-beet and fodder-beet acreages were greatly increased, while growing of potatoes, carrots and oil-seed rape was carried out over a number of years.

In 1968 the Wexford Wildfowl Reserve was established on c.100 ha of the North Slob, primarily to maintain suitable habitat for Greenland White-fronted Geese, and the Reserve area was doubled in 1990.

Use of Slobs by Geese

Since at least the 17th century Wexford Harbour was a major wintering area for Pale-bellied Brent Geese *Branta bernicla hrota*, and this species continues to use the area today. The first "grey geese" to discover the new feeding grounds on the Wexford Slobs were Greylags *Anser anser* which were first recorded there in 1898, about fifty years after the polders were created. This species quickly built up to c.6,000 birds and remained at this level until the late 1940s when a rapid decline set in. It is thought most Irish Greylags moved to new feeding grounds in Scotland.

In the meantime the first Greenland White-fronts *Anser albifrons flavirostris* began to appear on the Wexford Slobs by 1910: small numbers were recorded in the old shooting bag records. It is thought that by c.1935 Greenland White-front numbers had reached 5,000 - 6,000, though no actual counts were made at that time, simply rough estimates. The first accurate counts were made in the early/mid 1960s and for three winters in this period synchronised and co-ordinated monthly counts were carried out. These established that the wintering population was 6,000 to 7,000, apparently having remained more or less stable since 1935.

Weekly counts were carried out throughout each October - April season from 1968/9 to 1980/1, when the current research programme, reported on elsewhere in the Workshop Proceedings, commenced. The 1968/9 - 1980/1 counts indicated a continuing relatively stable population on the Wexford Slobs, the mean annual numbers ranging from 4,850 to 6,200, with the overall average for the period being 5,300.

The introduction of a hunting moratorium in 1982/3 resulted in a steady increase in Greenland White-fronted Goose numbers on the Wexford Slobs to their current level of about 10,000. With this increase there has been a tendency for geese (up to 1,000 in spring) to flight to sites outside the Slobs, notably to Cahore, over 20 km north of the North Slob.

Traditionally the Wexford Slobs population of Greenland White-fronts had always favoured the North Slob. Up to ten years ago the normal distribution pattern was two-thirds on the North Slob and one-third on the South Slob, but in the last decade 90% or more of the geese have shown a preference for the North Slob, probably due to more favourable conditions developing there.

For many decades the Slobs geese roosted at night on sand-bank islands at the mouth of Wexford Harbour, but since the mid-1970s, when these banks were greatly modified by winter storms, the geese have roosted mainly on recurve spits at Raven Point, part of a National Nature Reserve and a Ramsar Site.

Principles of the NCC Management Planning System

M Alexander,
Countryside Council for Wales,
Plas Penrhos, Ffordd Penrhos,
Bangor, Gwynedd, North Wales.

Abstract

This paper outlines the principles of the Nature Conservancy Council's management planning and recording system. The system was first described in June 1983. Since that time the general concept has remained more or less intact but there have been significant developments in respect of both implementation and application. Between 1989 and 1991 M Alexander, CCW and J Perrins, York University designed and produced the Countryside Management System. This is a computer based planning and recording system designed to facilitate the implementation of site/species management plans. During the same period M Alexander and T C Hellawell, CCW modified the system and applied it to species management.

A logical and structured planning process is the only means of ensuring and demonstrating that species and site management is both effective and efficient. There is a great deal to consider and there are many conflicts to resolve. The manager will often have to accept compromise in order to obtain the best possible management of a site or species while, at the same time, ensuring that the interests of others are accommodated. Having identified and carried out what is believed to be a suitable course of action managers must then ensure that they have made the appropriate decisions. This implies that the condition of the site and key features will have to be monitored and that the manager will be able to adjust the management in response to undesirable changes. Clearly the decision-making process can be complex and difficult. However, unless the correct decisions are made the site or species will suffer.

The process has been divided into four main sections with a preamble:

Preamble: This contains a general policy statement on behalf of the organisation/s responsible for the management of a species or site.

Part 1 Description: This is fundamentally a collation exercise. All relevant data are located and arranged under various standard headings. It is a crucial statement against which the effectiveness, or otherwise, of any subsequent management is measured. The main headings in a species plan are geographical range, environmental information, species information and ecological relationships with implications for management. The species heading includes the following subheadings; taxonomy, morphology, population size and distribution, population dynamics, diet and cultural implications.

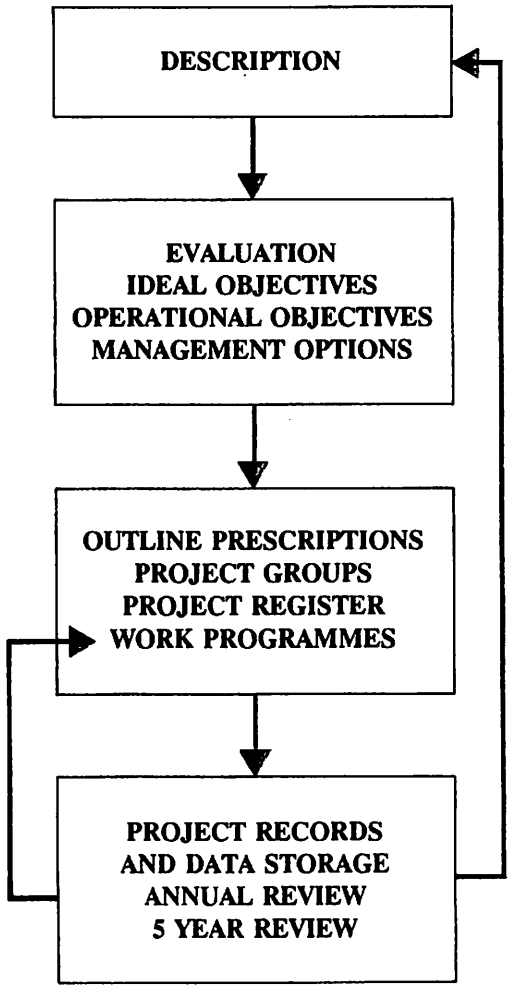
Part 2 Evaluation and objectives: This section of the plan begins with a structured evaluation process followed by the identification of the ideal objectives. The objectives need not relate exclusively to the requirements of an individual site or species. They may also reflect a wider conservation strategy or policy. Next, all the constraints and trends which may influence the ability to achieve the ideal objectives are identified. The constraints are applied to the ideal objectives. Where necessary the objectives are modified

and become operational, or achievable, objectives.

Part 3 Prescription: This section is used to describe all the work, including recording and monitoring, to be carried out in respect of site/species management. The work is described using a unique standard title and code for each individual project.

Part 4 Data storage and review: This section provides storage for project records and consequently all the data required for planning reviews.

Where planning is carried out in respect of an entire population with a natural range exceeding tenure or national boundaries it may be necessary to adopt a tiered planning system. For example the Greenland White-fronted Goose plan could have an international plan at the first level, plans for individual countries at the second and site plans as a third level. The first tier would identify the ideal objectives for the species and may, in the prescriptive section, contain detailed descriptions of planned international census programmes or even diplomatic action. However, in most cases, the detail would be contained within individual site plans. The objectives identified in the upper tiers would form part of the policy statement in the lower tiers.



Management of the Wexford Flock of Greenland White-fronted Geese

Patrick Warner,
National Parks & Wildlife Service,
Office of Public Works,
Bellview, Dublin Road, Mullingar, Co. Westmeath,
Ireland.

Abstract

INTRODUCTION

This talk sets out to explain how the suite of problems posed by the management of the Wexford based flock of Greenland White-fronted Geese have been dealt with in the last 5 year period.

When the speaker was appointed to the post of Regional Officer to this area the Wexford Wildfowl Reserve (WWR) had been in existence for some 16 years (it is Ireland's oldest nature reserve). It is co-owned by the Irish Wildbird Conservancy and the National Parks & Wildlife Service, with that Service acting as executive managers in close co-operation with the IWC.

The site was then managed as a grassland under lease to farmers for the summer months and some supplementary food was grown for the geese.

A goose and duck shoot operated on the reserve under a lease.

In the first year of this period the leases for both farming and shooting expired and had to be re-negotiated. The flock at that time was showing an increasing trend which was reflected in pressure from farmers who feared damage to their crops and shooting interests who wished to continue to hunt the flock. At about this time a new scaring technology using radio controlled model aircraft was developed and proved to be very effective.

MANAGEMENT STRATEGY

Land Acquisition: The first aim was to maximise the land available for geese, which was achieved by acquiring more land, effectively doubling the size of the reserve. The IWC again became co-owners of the "new reserve".

Grass Management: The productivity of the grass was maximised by using intensive agricultural methods (including both organic and inorganic fertilizers, reseeding and drainage) in co-operation with the grazing tenant. The existing grasslands were all "improved" grasslands already.

Other Feed: Trials with root crops showed that both sugar beet and fodder beet were effective goose foods which could be made available to the flock in a controlled manner when needed. Both are now grown every year, as is a small amount of cereals.

Disturbance (shooting): The shooting lease was re-negotiated over the whole North Slob (which is a mosaic of sporting rights owned by NPWS and others; land ownership often does not coincide with shooting rights). There is now no shooting on the reserve area.

Disturbance (scaring): By agreement with the local landowners the scaring of the geese was limited to the late winter/spring period i.e. 1st February onwards. Because of the low hill which separates the reserve from most of the rest of the slob it has been found possible to move the geese from the privately owned lands onto the reserve, where the food reserves of the beet crops are made available for them.

Public Use: Any site which is as well known as the WWR has to have facilities for the public; in recent years

this part of the reserve has been completely renovated with a new building, the renovation of the historic pump house and of the collection of captive waterfowl which are kept for the summer visitors. These renovations are still going on around you, for which I apologise.

MANAGEMENT PLANNING

No strategy works perfectly, and none works for ever; all the above strategies are subject to constant review and re-negotiation and the management plan for the reserve has had to be totally rewritten 3 times in three years.

Not the least of the problems faced by the managers of the reserve has been the potential for growth of the flock which inevitably creates problems and may de-stabilise agreements with neighbours.

It must also be recognised that the Greenland White-fronted Goose, and its problems, must compete for resources with other conservation problems and sites, both regionally and nationally.

International Legal Instruments

Susette Biber-Klemm
Th. Roniter-Strasse 15, 4310 Rheinfelden, Switzerland

Abstract

International legal instruments for the conservation of nature make use of different means for the protection of the natural environment:

- direct protection of species of wild animals and plants by regulating hunting, taking, commercialization, transport;
- indirect protection of species by the protection of their habitats;
- protection of certain types of endangered natural habitats as such.

In general these instruments include special regulations for the conservation of migratory species. In the case of the Greenland White-fronted Goose *Anser albifrons flavirostris* the regulations for the protection of species' habitats and the special regulations concerning migratory species are considered to be of main interest. In this context and considering the flyway of the Greenland White-fronted Goose, the following international instruments are taken into consideration:

Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention) (1971/1975); amended 1987 incl.

- Protocol to Amend the Convention on Wetlands of International Importance especially as Waterfowl Habitat, Paris 1982 (1986).
- Recommendation C.4.2 (Rev.) of the Fourth Conference of the Contracting Parties 1990 in Montreux, on Criteria for Identifying Wetlands of International Importance.

Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) (1979/1983) (incl. **Draft AGREEMENT** on Western Palearctic Waterfowl)

Convention on the Conservation of European Wildlife and Natural Habitats (Berne Convention) (1979/1982) incl.

- Resolution 1 (1989) of the Standing Committee on the Provisions Relating to the Conservation of Habitats;

- Recommendation 14 (1989) of the Standing Committee to the Contracting Parties on Species Habitat Conservation and on Conservation of endangered Natural Habitats;

- Recommendation 16 (1989) of the Standing Committee to the Contracting Parties on Areas of Special Conservation Interest

EEC Council Directive on the Conservation of Wild Birds (79/409/EEC)
(EEC Council Directive on the Conservation of Natural and Semi-natural Habitats and of Wild Fauna and Flora (Habitats Directive) (accepted in December 1991)

An analysis of these instruments shows that all of them include implicitly or explicitly regulations for the protection of migratory birds and their habitats, in some cases also explicitly the protection of *Anser albifrons flavirostris* and of its habitats.

In general it can be stated that the problem of conservation of migratory birds lies not in the first place in the content of the considered regulations, but in the problems of their implementation and in their incomplete geographical coverage.

One of the reasons for these implementation problems, which in our context is of special interest, is the difficulty to find the necessary consensus for the formulation and later interpretation of these regulations especially those concerning habitat protection.

There are two options to resolve this problem;

- Either general formulations are chosen, upon which many parties can agree, but which are difficult to implement;

- or more precise and compelling formulations are chosen, with the price of less countries being able to consent and becoming party of the instrument.

To find the way in between these two options it makes it necessary to have a lot of diplomatic skill and more often than not resembles the balancing act on a tightrope.

In this context it is important to know, that the consensus as agreed upon in the regulations, must not be a steady, everlasting fact, but is open to further evolution by the contracting parties. Therefore it can be advisable, not to insist on regulating too many details in the basic text and so enabling many parties to agree and then in a further stage develop the more concrete content of the instruments.

One basic requirement is though, that the parties agree at least upon the fact, that this evolutionary process is necessary and that the institutional measures must be arranged to make such inter-party communication possible (e.g. conferences, reports).

SPEAKER BIOGRAPHIES

Tony Fox

Tony Fox's first involvement with Greenland White-fronted Geese was whilst living in mid-Wales in the mid-1970s. Interest in the then declining flock of White-fronts on the Dyfi Estuary lead to the formation of the Aberystwyth based Greenland White-fronted Goose Study (GWGS), and the initiation of the GWGS 1979 and 1984 expeditions to Greenland. Tony Fox has since undertaken much further work on White-fronts throughout their range. In particular aerial surveys and catching in Greenland, studies of spring distribution and behaviour in Iceland, and with colleagues at the Wildfowl & Wetlands Trust, analysis of the National Parks and Wildlife Service's extensive resighting database. Tony Fox is still involved with GWGS, and is Deputy Director of Research at the Wildfowl & Wetlands Trust.

Peter Nielsen

Peter Nielsen is a biologist with Namminersornerullutik Oqartussat (the Greenland Home Rule government). He works in the Section for Renewable Resources of the Directorate of Industries and Fisheries, where his responsibilities include aspects of nature conservation, as well as work on sheep farming in south Greenland, Reindeer herding and various veterinary aspects.

Arnthor Gardarsson

Arnthor Gardarsson is currently Chairman of Náttúruverndarráð (the Icelandic Nature Conservation Council), the body responsible for the listing of important nature conservation areas in Iceland and for the designation of nature reserves. He is a well-known waterfowl biologist and has wide-ranging research interests concerning the ecology of waterfowl (especially Whooper Swans) and wetlands, as well as their conservation. He works at the University of Iceland in Reykjavik.

Aevar Petersen

Aevar Petersen is Curator of Zoology at the Icelandic Museum of Natural History, where his responsibilities include the running of the Icelandic ringing scheme. He is Chairman of the Icelandic Bird Protection Committee - a body which is advisory to the Minister for the Environment, as well as the Icelandic section of the International Council for Bird Preservation. He has a long involvement in bird research and conservation issues in Iceland, and his research has especially concentrated on Iceland's internationally important seabird populations.

David Stroud

David Stroud's involvement with Greenland White-fronted Geese started when living in mid-Wales. He was involved in the organisation of the 1979 and 1984 Greenland White-fronted Goose Study expeditions to west Greenland, and has undertaken more recent aerial surveys and goose catches in Greenland. He undertook research on the geese wintering on Islay between 1980-1985, and has also studied White-fronts in Iceland, as well as elsewhere in the wintering range. He is currently senior ornithologist with the UK Joint Nature Conservation Committee and has been commissioned by IWRB and the National Parks and Wildlife Service to prepare the Draft International Conservation Plan to be discussed at this meeting.

John Wilson

John Wilson is currently head of the Ornithological Section within the Research Branch of the Irish National Parks and Wildlife Service. Issues related to the conservation of Greenland White-fronted Geese have featured throughout his period there. In particular he was instrumental in reviewing the Greenland White-fronted Goose research and surveys programme in 1980 and in developing a high degree of international co-operation in those endeavours since then. He also initiated and guided the long-term marking programme at the Wexford Slobs, which has resulted in a dataset of considerable importance to the conservation management of the species. He has also been the scientific representative to the Ramsar and Bonn Conventions.

Janine van Vessem

Janine van Vessem is currently working with the International Waterfowl and Wetlands Research Bureau, where she is head of the Waterfowl Division. Her responsibilities include the co-ordination of international monitoring of waterfowl populations, with the maintenance of international databases, the production and co-ordination of waterfowl conservation plans, and support for the activities of IWRB's Research Groups. She formerly worked with the Instituut voor Natuurbehoud - the Institute for Nature Conservation of the Flemish Government in Belgium, and is well-known for her research on Grey Herons.

Hugh Boyd

Hugh Boyd has recently retired as the Director of the Migratory Bird Research Division, Wildlife Toxicology and Surveys Branch of the Canadian Wildlife Service. He is internationally respected as an authority on the conservation of migratory birds, especially geese, and his career has encompassed research, management and governmental aspects. His involvement with Greenland White-fronted Geese extends back to the 1950s when he was working with the Wildfowl & Wetlands Trust at Slimbridge, UK. He undertook the first analyses of mortality of this population based on recoveries of geese ringed in Greenland by the Greenlandic ringing scheme. Since then he has maintained involvement through frequent visits to the Scottish wintering grounds, and in recent years, by participating in spring studies of the geese in Iceland.

David Norriss

David Norriss works in the Research Branch of the Irish National Parks and Wildlife Service. He has been involved in studies of the distribution, movements and ecology of Greenland White-fronted Geese in Ireland since the early 1980s. In particular, his work has involved the collation of a sites inventory based on co-ordinated survey information. This has been fundamental in guiding conservation actions through the identification and protection of key Irish wintering sites. His analyses of information of differing site management and its effect on geese have given important insights into the role of disturbance as it affects these birds.

Oscar Merne

Oscar Merne works in the Research Branch of the Irish National Parks and Wildlife Service. His involvement with Greenland White-fronted Geese began in the mid-1960s. He became the first warden of the Wexford Wildfowl Reserve in 1968, a post he held until 1979. During this period he developed the goose censusing technique which is still used today. He has taken particular responsibility for the co-ordination of waterfowl counts and has developed great expertise in aerial surveys of wetlands including the blanket bogs used by Greenland White-fronts.

Mike Alexander

Mike Alexander is currently working on the development of management plans for nature conservation with the Countryside Council for Wales (and formerly with the Nature Conservancy Council). He has been a nature reserve warden and has been heavily involved in the development of the Countryside Management System - a system of management planning now being adopted by conservation bodies not only within the United Kingdom, but also more widely in Europe. Although derived as a system to facilitate the preparation of site management plans, he has been assisting with the preparation of the Greenland White-fronted Goose plan which develops the system at a species level.

Pat Warner

Pat Warner is the Regional Officer in charge of management in the Eastern Region of the National Parks and Wildlife Service, Ireland. This Region incudes the Wexford Wildfowl Reserve, the Raven Point Nature Reserve, 21 other managed conservation areas including the Wicklow Mountains National Park and sites used by other smaller flocks of Greenland White-fronted Geese in the midlands.

The management problems of alternate, privately owned, sites used by the Wexford flock; the North Slob, South Slob, and Cahore are also part of the management portfolio of the region.

Susette Biber-Klemm

Susette Biber-Klemm lives in Switzerland where she is undertaking research on the comparison of different international wildlife legislation, their scope and their implementation. She has recently published a detailed review paper on these issues in the International Council for Bird Preservation's Book Conserving Migratory Birds.