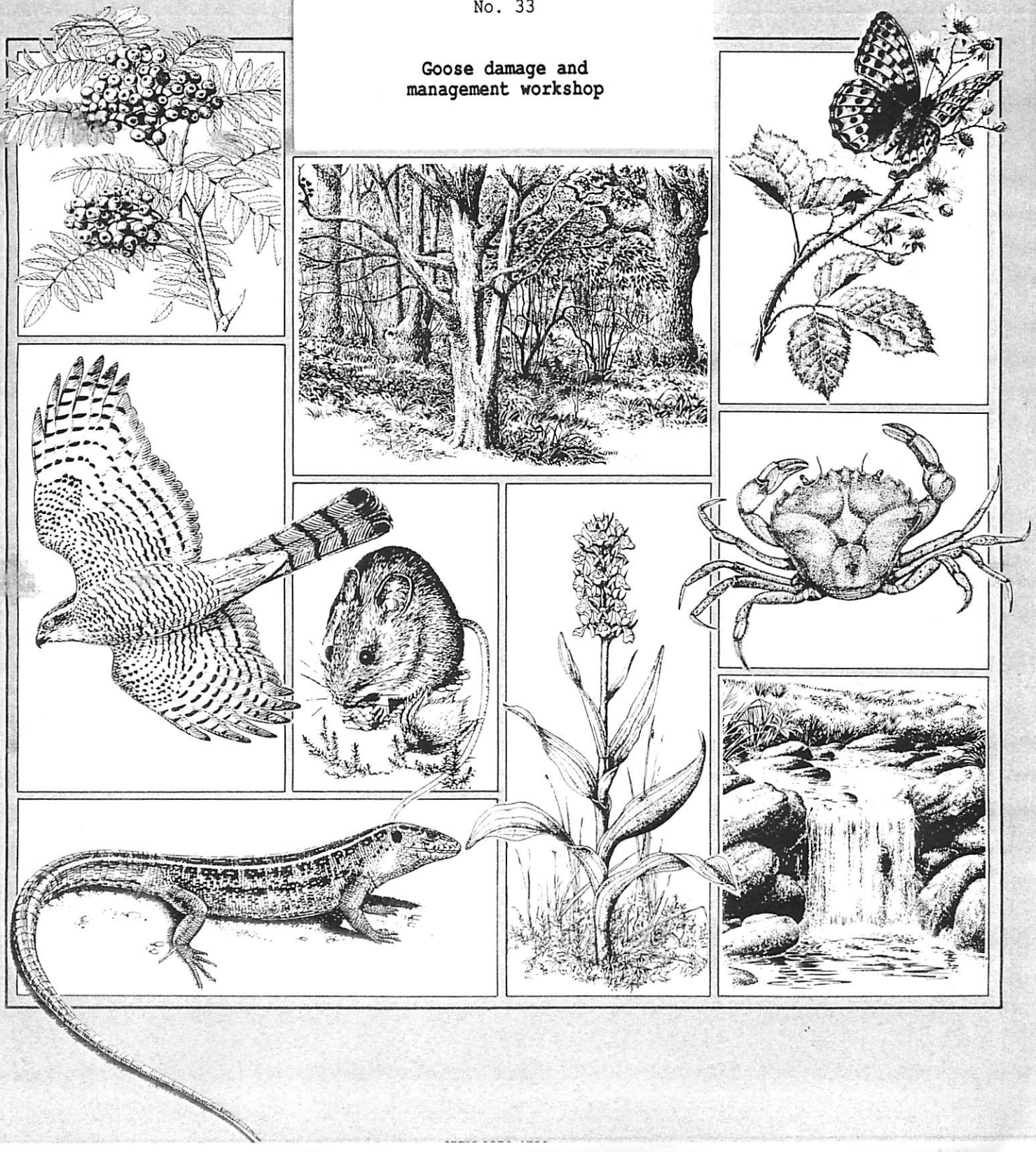
JOINT NATURE CONSERVATION COMMITTEE

Research & survey in nature conservation

No. 33

Goose damage and management workshop



Owen

Eric Bignal, although outposted in the west of Scotland, works for the Chief Scientist Directorate of the Nature Conservancy Council. He has done a considerable amount of work in relation to the conservation of wildlife on Islay; as we know, the goose controversy is a very important part of that scene.

A CASE STUDY IN GOOSE MANAGEMENT: THE ISLAND OF ISLAY

Eric Bignal, Nature Conservancy Council, Clachan, Tarbert, Argyllshire, **David Stroud**, Nature Conservancy Council, Northminster House, Peterborough, PE1 1UA and **Nigel Easterbee**, Nature Conservancy Council, 12 Hope Terrace, Edinburgh, EH9 2AS

We shall discuss some of the issues which we believe hinder the development of a more successful goose management policy, for example the merit of licensing sport shooting in the guise of agricultural protection, the need to define "serious agricultural damage", the need for positive management for both species of geese within Sites of Special Scientific Interest and the need objectively to monitor both goose numbers and management activities in the long-term.

Finally, we shall consider the importance of island politics in developing a coherent policy, and make suggestions for dealing with these aspects in the future.

Introduction

Islay is a particularly important wintering area for geese, supporting about 25% of the world population of the Greenland White-fronted Goose and about 60% of the Greenland population of the Barnacle Goose. Both species are listed on Annex 1 of EC Directive 79/409 on the Conservation of Wild Birds as requiring special protection, partly because of their vulnerability to the irregular variations of arctic breeding conditions and their restricted distributions in the winter quarters. This latter feature also presents problems because, although the world populations of these geese are small, they are concentrated in restricted areas with the potential for conflict with farmers. NCC has a responsibility to conserve these goose populations. Clearly, it is highly desirable that this should be done in a way that does not disadvantage the local community.

White-fronted Geese breed in low-arctic west Greenland between 63° and 72°N (Salomonsen 1950), whilst the traditional winter range falls entirely in Britain and Ireland. Barnacle Geese breed in north-eastern Greenland. Recent observations have found breeding Barnacle Geese as far north as Kilen in the far north of Greenland (north of 80°N) (Boertmann unpublished) but the main breeding range extends from Jameson Land at 70°N in the south to Wollaston Foreland 78°N in the north (Cabot et al. 1988).

On autumn and spring passage both populations pass through areas of Iceland. Whitefronts utilise principally lowland areas of south and west Iceland (Francis & Fox 1987) whilst Barnacle Geese occur particularly in the north-western fjords area of Iceland. Feeding and meteorological conditions here have been shown to be important in determining breeding success of Barnacle Geese (Fox & Gitay 1990).

1 Barnacle Geese

Two events in the late 1940s and early 1950s are important in understanding some of the current issues. Firstly, in the Command Papers before the passage of the 1949 National Parks and Access to the Countryside Act, Loch Gruinart was recognised as being a potential National Nature Reserve because of its importance for wintering wildfowl. When this view became public knowledge it produced an adverse reaction from the owners of the land and the objective of National Nature Reserve status has yet to be achieved - it is the only site in the original list which has not.

Secondly, in the 1954 Protection of Birds Act, the Barnacle Goose was given full protection in Britain. However, on 18 November 1955 the Secretary of State for Scotland issued an Order which allowed the geese to be shot in the months of December and January on "those islands which are situated within any of the counties of Argyll, Inverness and Ross and Cromarty and which lie off the mainland of the said counties and to the west of longitude 5 degrees west". A subsequent amendment in 1976 (Statutory Instrument No. 1416 (S.115)) permitted shooting west of longitude 5°W (Islay) outside of a closed season beginning on 1 February and ending on 31 August. A further amendment in 1978 (Statutory Instrument No. 96 (S.4)) extended the open season below high water mark on Islay to 21 February. Land owning interests on Islay, in particular the owners of Islay Estate, were instrumental in effecting these amendment orders.

Towards the end of the 1970s, well organised commercial sport shooting of both Barnacle and White-fronted Geese was developed on the island involving by then most of the major estates as well as a number of hotels which had acquired shooting rights and could therefore offer clients goose shooting. At this time the populations of the two species were 17,000 Barnacle Geese and 3,500 Greenland White-fronted Geese.

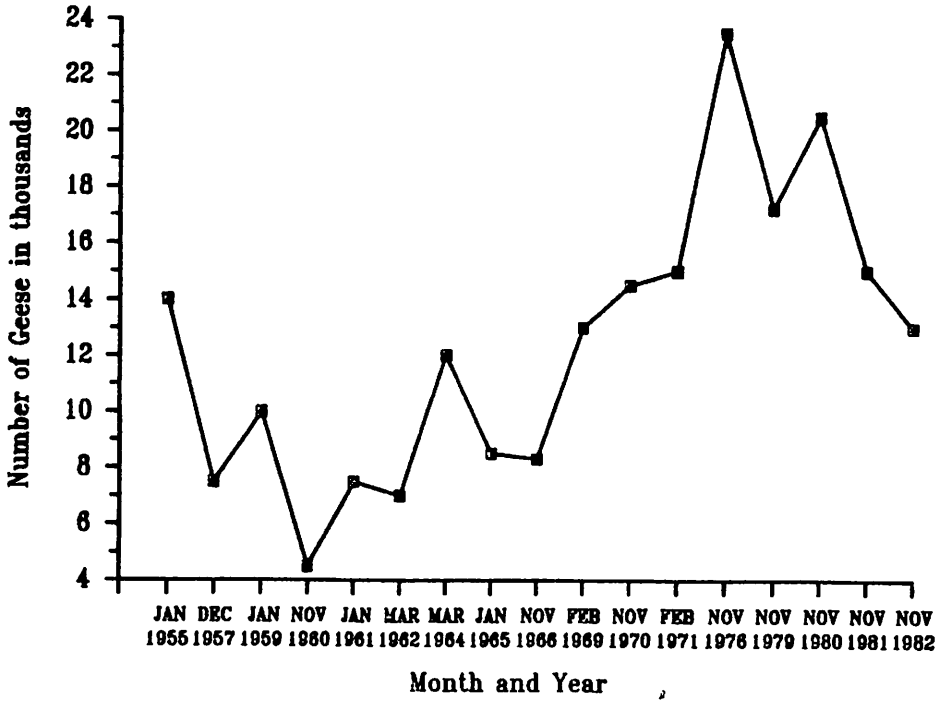


Figure 4.1 Peak winter counts of Barnacle Geese on Islay (from Bignal et al 1989)

The Barnacle Goose numbers wintering on Islay have displayed wide fluctuations since counts began (1955) and during the period up to 1982 it ranged from just under 5,000 to a peak of 24,000 in 1976/77, see Figure 4.1. Generally the trend was for numbers to increase between 1962 and 1976 and thereafter to decline to 12,000 in 1982. There is clearly an observable relationship between the protective legislation and goose numbers.

Some care is needed in interpreting these figures especially if they are to be used as a baseline for current management decisions. In particular, it should be appreciated that the early totals are not strictly comparable between years and that incompatibility in these data are likely to reflect under-estimates in the early counts when coverage was less complete. Marked annual fluctuations, especially apparently abnormally high peaks, may in fact reflect short stop-over birds inflating the apparent over-wintering numbers (Boyd 1968).

As long ago as the mid-1950s there were the first grumblings by farmers about high goose numbers. By the late 1970s there was a recognised conflict between the geese and agriculture in some areas of the island but this principally centred on the closed season between February and April when shooting stopped and when farmers anticipated a flush of new spring grass coincident with lambing time.

In effect the "management policy" during this period was one of preventing increase in numbers (and by implication agricultural conflict) by culling. In 1971 three Sites of Special Scientific Interest (SSSI) were notified for their importance to wintering Barnacle Geese: Gruinart Flats, Bridgend Flats and Laggan peninsula. Consultation with the owner of these sites (Islay Estate) resulted in limiting their boundaries primarily to the roosting areas on intertidal mudflats and saltmarsh. This was particularly so at Bridgend Flats where the original proposal was to include the hinterland of feeding areas in the Ballygrant valley.

Following the passage of the Wildlife and Countryside Act both species are now fully protected at all times unless it can be established that they are causing "serious agricultural damage" in which case licences to kill them can, as a last resort, be issued by the Department of Agriculture and Fisheries for Scotland (DAFS) after consultation with the NCC.

Following this protective legislation the populations of both species has been monitored in a systematic fashion. Numbers of both species have increased, as shown in Table 4.1.

Table 4.1 Mean over-wintering goose numbers on Islay 1983-1990

	Barnacle Geese			White-fronted Geese		
Year	Popn.	S.D.	n	Popn.	S.D.	n
83-84	15,535	911	10	3,851	550	13
84-85	17,119	733	8	4,439	629	10
85-86	17,561	899	12	4,895	800	12
86-87	21,676	1,434	11	5,641	817	9
87-99	20,384	1,742	3	7,266	68	3
88-89	20,610		2	6,978		2
89-90	23,183		3	7,461		3

In 1983 the three SSSIs were renotified under the new legislation and their boundaries rationalised to allow the development of a sanctuary management strategy for Barnacle Geese developed by the Wildfowl and Wetlands Trust for minimising conflict with farmers (Owen 1977, 1990). Through this sanctuary management policy farmers within the SSSI have management agreements and receive payments and free provision of late winter fertilizer to offset the effects of the geese. The new SSSIs included feeding areas as well as the roosts and, through agreements, reduced disturbance in these areas. Outside the SSSI scaring should take place to make these areas less attractive.

The agreements were also necessary because the DAFS were prepared to issue licences for the killing of geese within the SSSI unless an offer of an agreement had been made.

In the same year, part of the Gruinart Flats SSSI was acquired by the RSPB as a Nature Reserve. This has been managed primarily as an intensive farm to provide optimal conditions for the Barnacle Geese.

An appraisal of the Sanctuary Management Policy

Between 1982 and 1986 there was no systematic scaring of geese outside the sanctuaries and those previously involved in sport shooting argued strongly that licences should be issued to allow shooting parties outside the SSSIs to "scare" the geese. However, the methods of sport shooters are not appropriate in this situation and, although large numbers of geese were shot, farmers were not happy with the results. Geese merely moved from farm to farm and there were often long periods with no disturbance to allow the geese to congregate again in the areas for which licences applied. Also little attention was paid to farms with limited sporting potential. Moreover many observations of shooting parties on Islay showed that they in fact exacerbated agricultural conflict by moving birds onto more vulnerable areas (pers. obs. and D Dick; internal NCC reports). This kind of shooting also produces a high proportion of injured, maimed and crippled birds which is unacceptable for a species for which special protection measures are required to be taken under a European Directive (Mooij 1990).

The situation was further complicated by the initial refusal by Islay Estates to allow its tenant farmers to have licences. During this period and to the present, the ironic situation has also occurred where a protected species can be hunted for a longer period than under previous legislation in which a closed season was included. There was also much criticism of the DAFS from NCC and RSPB for their readiness to issue licences without definition and assessment of serious agricultural damage, no insistence on scaring before killing and no restriction to killing geese on vulnerable agricultural land. The fact that licences could be transferred to other people was seen as a blatant concession to the shooting fraternity and to the Estates to permit the continuation of existing commercial shooting.

During the period up to 1987 the policy was clearly failing, yet despite the fact that the greatest problems were occurring outside the sanctuaries, criticism of the policy focused on management within the sanctuary areas rather than on the real issues which was the provision of adequate, well targeted and sustained scaring.

At this time there was conflict between:

1 DAFS and the Estates over licences for shooting;
2 farmers and the Estates over shooting rights;
3 DAFS and NCC over the definition and assessment of serious agricultural damage;
4 DAFS and RSPB over licenced sport shooting;
5 NCC and the farmers over adequate compensation within sanctuaries;
6 DAFS and NCC together against the Estates over developing organised scaring outside of the sanctuaries;
7 BASC and the Estates over the use of Barnacle Goose licences for sport shooting by their members;
8 FFWAG, NFU, DAFS and NCC against the Islay Estate over access for a MSC scaring team.

Some of these issues have never been adequately resolved. However, in the winters of 1986/87 and 1987/88 the first systematic scaring programmes took place and it was shown that the scaring, carried out by MSC funded teams, did have a positive effect (Percival et al. 1988) although there was no detailed monitoring.

For the winters of 1988/89 and 1989/90, DAFS and NCC co-funded scaring carried out by the farmers themselves.

Percival et al. found a considerable increase in the proportion of birds in sanctuaries in 1986/87 and 1987/88 compared with previous years but recent work (Ogilvie 1989) shows a partial reversal with a reduced proportion in the sanctuaries. However, the sanctuaries are still showing a clear beneficial effect.

Table 4.2 The proportion of Barnacle Geese in sanctuaries

1985/1986	OCT/NOV	84%	1988/1989	DEC	69%
	DEC/FEB	55%		MAR	45%
	MAR/APR	65%			
			1989/1990	DEC	70%
1986/1987	DEC	58%		FEB	61%
	APR	41%		APR	63%
1987/1988	FEB	70%			
	MAR	70%			

2 Greenland White-fronted Geese

Numbers and distribution

The historical count data in Britain and Ireland (where this entire population winters) are very incomplete until 1982 in Britain and 1983 in Ireland. Up to 1979 the situation is summarised by Ruttledge & Ogilvie (1979), who pointed to a major decline since the 1950s. In general terms, the number of White-fronted Geese in Ireland had declined, probably by about 50%, whilst numbers in Britain may have increased by about 13%. However, this apparent increase is not very reliable because improved coverage of censuses has contributed considerably. The study found that the most important reason for the decline

in Ireland is loss of habitat, mainly bogs; and that shooting and disturbance had had adverse effects, particularly where habitat loss had concentrated the birds.

Data collected for this species on Islay in the 1970s were not systematic or complete, being gathered incidentally to the counts of Barnacle Geese. From 1982, censusing has been thorough, and only from this time are the data sufficiently reliable to consider trends. Table 4.3 (from Stroud et al. in prep) summarises these. This population has increased slightly since 1983, but remains at a very low number for the world population of a subspecies.

Table 4.3 Population monitoring of Greenland White-fronted Geese in Ireland and Britain. Data from Irish Wildlife Service and Greenland White-fronted Goose Study Reports (Stroud et al. in press). Autumn (late November/early December) census only.

	1983	1984	1985	1986	1987	1988	1989
Wexford	4,758	6,097	7,930	7,033	7,988	10,510	8,238
Rest of Ireland	2,879	3,030	3,565	3,185	3,952	4,328	4,044
Islay	4,592	5,256	6,332	6,126	7,373	7,588	8,560
Rest of Britain	3,596	4,234	4,813	4,785	5,142	4,915	5,874
TOTAL POPULATION	15,825	18,617	22,640	21,129	24,455	27,341	27,716

Breeding success has been monitored on Islay by age-ratio and brood-size determination since 1962/63 (Ogilvie 1983; Stroud 1983, 1984, 1985). Some of the earlier samples are based on small numbers of geese aged, and may be misleading.

The success varies greatly from year to year. This may be due to extrinsic factors such as the weather on arrival and throughout the summer in Greenland, but probably also reflects aspects of goose condition on the winter grounds during the previous spring.

Mean productivity of birds returning to Islay was 14.5%, low for a goose population, and particularly so for what was a quarry species for much of the period. In contrast, the European race of the White-fronted Goose has, on average, 34% young in autumn, and the two North American sub-species produce 37% and 37.5%. Brood-size, mean 2.6, is however high. This means that an exceptionally low proportion of mature Greenland White-fronted Geese breeds successfully, a feature confirmed by studies of colour-ringed birds caught in Greenland during 1979 (Fox et al. 1983). It is thus vital that no additional factors reduce the breeding success of these birds.

No direct information on mortality rates is available. However, calculations based on analysis of recoveries of ringed geese indicate that the mortality rate between 1946 and 1978 was higher than that of most other goose populations, and probably considerably exceeded recruitment. Shooting was a

major contributor, and it is thus fortunate that statutory or voluntary bans are now in force throughout the range. As some of these restrictions are dependent upon this common approach, it is important that reversals are avoided.

Under the 1954 Protection of Birds Act, Greenland White-fronted Geese were quarry species throughout their range in Britain. This remained the case until the 1981 Wildlife and Countryside Act. This legislation gave White-fronted Geese complete protection in Scotland (although anomalously they remain legal quarry in Wales and England). Latterly, and in view of the documented decline in numbers, the major estates exercised restraint in the shooting of White-fronted Geese on Islay (Ogilvie 1983).

Greenland White-fronted Geese remained protected between the passage of the 1981 Wildlife and Countryside Act and 1987; although there were calls for licences from land-owning interests on Islay, none were issued.

In November 1987 DAFS issued 13 licences to shoot unlimited numbers of Greenland White-fronted Geese. Seventy-six geese were shot during that winter on Islay. This was against the representations of a large number of national and international conservation bodies, including NCC and RSPB. The definition of the alleged serious damage has never been given, although frequently requested from DAFS. Fewer licences were issued in 1988/89 (6) and 1989/90 (2) although in all years there were no conditions as to numbers of geese to be shot. Also, licences have extended either through to the end of April or, in 1988/89, substantially until departure of the geese in mid-April. This, for both goose species, is arguably in breach of both the letter and certainly the spirit of the EC Birds Directive which requires protection of migratory species during the period of reproduction which includes the essential period of pre-migratory fattening on Islay.

Management implications

Greenland White-fronted Geese generally pose less of a conflict because of their tendency to feed more on semi-natural vegetation than do the Barnacle Geese (although the finer points of specific goose identification are not of course noted by all farmers). Some of the principal roosting sites have been notified as SSSI and the Rhinns of Islay SSSI includes some feeding areas for this species.

Sanctuary management for Whitefronts on Islay is less appropriate than for Barnacle Geese (Wilson et al. 1990). Therefore, NCC proposals are to include this species with several others, including Chough, Hen Harrier (and other raptors) and Corncrake, which are also dependent upon rough permanent pasture and other features of low-intensity farmland, and to negotiate management agreements. These would provide for payments to be made to sustain long-established farming practices and the acceptance of constraints due to the presence of rare birds. This would effectively play down the goose issue and not set unwanted precedents elsewhere on the island and further afield; this scheme would also be a management policy applicable for the PSSSI on the Oa.

Positive management agreements should be developed here both to protect and enhance the scientific interest of the site but also to show that the SSSI will have tangible benefits for those directly affected by the designation. In the context of the discussions on goose sanctuary management it has been suggested that these agreements could focus on providing (or sustaining) conditions suitable for a suite of species rather than emphasising the value

of the area to White-fronted Geese or any other specific interest, as indicated above.

These agreements would therefore form an essential and integral part of the goose sanctuary management policy by sustaining the existing amount of natural habitat, rough pasture, marshland etc. and achieving the objective of effectively controlling the amount of rotational arable grass on the Rhinns.

This approach would dovetail with the policy for scaring Barnacle Geese both on the Rhinns (on arable and rotational grass) and elsewhere. Without it, the future success of this policy must be in question, and the potential problems of White-fronted Geese on young grass greater.

Some points must be stressed concerning the displacement of White-fronted Geese from agriculturally improved fields. NCC must be aware that a policy of moving Whitefronts around, particularly in the spring, and denying them their favoured feeding areas could impair breeding success and lower population levels. Whilst this might be an objective of farmers and estates, it should not be an objective of ours (and would certainly bring strong criticism). The aim would be to move Whitefronts feeding in spring in large flocks on improved grass into sanctuaries to "share" sanctuary grass with Barnacles or break up these large flocks and move the resulting smaller flocks onto older pastures. (Large flocks feeding on stubbles in autumn present no problems, and scaring needs to be carefully planned through the season to avoid unnecessary disturbance.) There may well be social/behavioural complications (e.g. the need for the availability of fresh water, the proximity of feeding areas to roosts etc.) and a flexible policy enabling sanctuary modification may be required.

The proposed methods of management agreement payments could go some way towards helping in this respect. The philosophy would be to avoid the development of a policy by which Whitefronts are effectively turned into Barnacles in terms of feeding ecology. With the proposed policy, Whitefronts feeding in relatively large flocks on young grass should occur only on sanctuaries, and most Whitefronts would remain well dispersed in small flocks on semi-natural habitats.

Assuming an SSSI is designated on the Oa, in the longer term the main area of potential future conflict for White-fronted Geese (and indeed for Barnacle Geese) will be in the Ballygrant valley-Kilmeny area. Scaring may effectively move all geese on to sanctuaries, but it seems more likely that the White-fronted Geese will form smaller flocks and remain in the area. Although probably on rougher pastures and limestone grasslands, there is therefore potential for continuing conflict between NCC and farmers. Farmers will find it difficult to understand why compensation payments (management agreements) are paid over rough pastures and old grasslands on the Rhinns but not elsewhere. This may, in conjunction with the review of the effectiveness of scaring and of the Laggan sanctuary for Barnacle Geese as outlined above, provide justification for a combined Whitefront/Barnacle sanctuary in the Kilmeny area. Current ornithological research is identifying the north-eastern area of Islay to be of significant importance for a combination of species similar to that in the Rhinns. The area is also known to have botanical and habitat importance. Many factors in combination point to the possibility of an SSSI in this area, and NCC should be aware of this for the medium term.

The Future

Our conclusions are straightforward:

1 For Barnacle Geese we are convinced that the basic concept of sanctuary management is sound but has never been implemented adequately. Until this occurs, proposals for changes in policy, e.g. legislation changes, culling etc., are premature.

2 For the future an extension or redefinition of the existing Barnacle Goose sanctuaries should be considered. The main issue for Barnacle Geese is whether birds should or could be moved from the Ballygrant valley to Gruinart and from Mulindry/Tallant to Laggan. The Laggan SSSI is at present a poor sanctuary. It seems unlikely that significant numbers of geese can be attracted away from the intensive (high nitrogen input) dairy farms in the Ballygrant area, which may need incorporation in the sanctuary. However, at least two seasons of active scaring of Barnacle Geese from improved grass in these dairying areas should precede any move in this direction. NCC must be in a position of control both to monitor and, if necessary, to stop or redirect scaring.

3 By contrast, Greenland White-fronted Geese have few daytime sanctuaries. The main protected areas at Eilean na Muice Dubh, Feur Lochain and Glac na Criche SSSI are used mainly at night. In these circumstances, chasing inherently site-faithful birds around Islay tends to exacerbate agricultural damage problems. It is more appropriate to concentrate on protecting particularly vulnerable crops in a local context. Despite a welcome recent increase in numbers, this subspecies remains rare in global terms and Britain has an international responsibility to protect it. We remain to be convinced by DAFS that serious agricultural damage has been caused by these geese, or that the issue of licences to kill unlimited numbers of birds is a wise means of tackling the problem. The issue of positive management agreements, and additionally, ESA-type arrangements would offer a long-term solution which does not require major re-distribution of geese on the island.

References

BIGNAL, E.M., CURTIS, D.J. & MATTHEWS, J.L. 1990. Islay: Land types, bird habitats and nature conservation. Part 1: Land use and birds on Islay. Nature Conservancy Council, CSD Report, No. 809, Part 1.

BOYD, H. 1968. Barnacle Geese in the west of Scotland, 1957-1967. Wildfowl, 19, 96-107.

CABOT, D., GOODWILLIE, R. & VINEY, M. 1987. Irish expedition to North-east Greenland 1987. Barnacle Books, Dublin.

FOX, A.D. & GITAY, H. in press. Meteorological correlates of breeding success in Greenland Barnacle Geese wintering in Islay, Scotland. Ardea.

FOX, A.D., MADSEN, J. & STROUD, D.A. 1983. A review of the life history and ecology of the Greenland White-fronted Goose. Dansk Ornithologisk Forenings Tidsskrift, 77, 43-55.

FRANCIS, I.S. & FOX, A.D. 1987. Spring migration of Greenland White-fronted Geese through Iceland. Wildfowl, 8, 7-12.

MOOIJ, J. in press. Shooting mortality and crippling losses of geese. Ardea.

OGILVIE, M.A. 1983. Wildfowl of Islay. The Royal Society of Edinburgh Proceedings, 83B, 473-489.

OGILVIE, M.A. 1989. Monitoring of goose numbers in relation to scaring on Islay. Report to the Islay Forestry, Farming and Wildlife Advisory Group, August 1989. Unpublished FFWAG Report.

OWEN, M. 1977. The role of wildfowl refuges on agricultural land in lessening the conflict between farmers and geese in Britain. Biological Conservation, 11, 209-222.

OWEN, M. 1990. The damage-conservation interface illustrated by geese. Ibis, 132, 238-252.

PERCIVAL, S.M., HALPIN, Y. & HOUSTON, D. 1988. The effects of scaring disturbance on the distribution and abundance of Barnacle Geese on Islay in winter and spring 1987/88. Nature Conservancy Council, CSD Report, No. 986.

RUTTLEDGE, R.F. & OGILVIE, M.A. 1979. The past and current status of the Greenland White-fronted Goose in Ireland and Britain. Irish Birds, 1(3), 293-363.

SALOMONSON, F. 1950. Grønlands Fugle: The Birds of Greenland. København.

STROUD, D.A. 1983. Greenland White-fronted Geese in Britain; 1982/83. Greenland White-fronted Goose Study, Aberystwyth. Research Report No.1.

STROUD, D.A. 1984. Greenland White-fronted Geese in Britain; 1983/84. Greenland White-fronted Goose Study, Aberystwyth. Research Report No.2.

STROUD, D.A. 1985. Greenland White-fronted Geese in Britain; 1984/85. Greenland White-fronted Goose Study, Aberystwyth. Research Report No.3.

STROUD, D.A., FOX, A.D. WILSON, H.J. & NORRISS, D.W. In prep. Greenland White-fronted Geese in Ireland and Britain 1982-87: population monitoring and conservation. Biological Conservation.

WILSON, H.J., NORRISS, D.W., WALSH, A., FOX, A.D. & STROUD, D.A. In press. Winter site fidelity in Greenland White-fronted Geese: implications for conservation and management. Ardea.

No. 33

Goose damage and management workshop

Proceedings of a meeting
organised by
The Wildfowl and Wetlands Trust
at Martin Mere, Lancashire, on 27 April 1990

edited by

Myrfyn Owen
The Wildfowl and Wetlands Trust

and

M W Pienkowski
Nature Conservancy Council

Prepared by the Nature Conservancy Council. Published by the
Joint Nature Conservation Committee

The Joint Nature Conservation Committee and the three country councils carry forward duties previously undertaken by the Nature Conservancy Council.

Further copies of this report can be obtained from the
Joint Nature Conservation Committee, Monkstone House, City Road, Peterborough PE1 1JY.

ISBN 0 86139 688 X