

GOOSE EXPERT

ARCHIVE

2-1-75

Closed

16.12.75

7	Xm	Deep	21/3	CPS	20	22/5	DCS	RM	22/7	BW	28/9/75
M	-	R	DCS	(35)	/	Deep	C1	87	-	DCS	(102)
T	-	S	CPS	?		-	24/5	DS	-	27/7	PIT
I	-	O/I	BU	-	27/3	Type 2	DM	22	-	DCS	(103) 10/75
13	CS	?	-	(35)	-	26/5	DCS	23	-	8/5	
21	GU	1/4	-	om	-	DCS	24	(104)	DCS	(103) 10/75	
22	DCS	(25)	DCS	(54)	4/6	Type	-	15/8	C1	32	
23	BU	-	1/4	Type	-	4/6	R	-	18/8	DS	17/75
-	DCS	-	11/4	DCS	(57)	9/6	Deep	-	15/8	BW	3/10/75
-	DM	-	14/4	Type	-	1/6	7	-	18/8	DS	BU
S	-	24/5	DCS	2	14/6	Type	-	15/8	BW	8/10/75	
PK	-	22/1	PK	8	14/4	Deep	-	15/8	DCS	(105) PA	
P	-	23/1	DCS	-	14/4	DCS	-	14/6	DCS	14/4 25/10	
-	-	DCS	IL	17/6	BW	18/6	DCS	-	14/6	PK	
3	-	30/1	DM	-	DCS	6/6	Req	-	14/8	PLV	(103)
1	-	32	A2	HE	17	NA	DS	25	-	2	
-	-	37	Type	-	-	DCS	18	24/6	23	(104)	
-	-	DCS	-	-	-	Type	-	20/6	C1	27	
1	g	DCS	14	28/4	DCS	-	24/6	HE	28	18	
2	4/2	BU	6/3	70	Type	-	23	24	24	24	
PA	-	47	DCS	-	6/5	-	3/7	CS	(106)		
22	-	23/2	DM	-	Deep	-	7	DCS	30	27/8	
4	22	DCS	(48)	10/5	2L	19	14/7	Type	-	27/8	
5	22	Type	-	20/5	Type	-	14/7	JL	-	27/8	
22	-	20/3	7	-	DCS	20	27/7	Deep	-	27/8	
22	-	20/3	7	-	DCS	20	27/7	Deep	-	27/8	
22	-	20/3	7	-	DCS	20	27/7	Deep	-	27/8	

BU 29.1.75

BU 3/2/75

1.

C.S.

(10) - (12) The article by Harnadine appears harmless enough and may provide some background to the Goose problem. The reference to the early history commencing at the foot of p. 6 of the article will need checking as for that matter would be better if re written.

John
30/1

P.S. I see no objection to a visit to the Hospital laboratory as requested. We will end up with 3 Depts using the laboratory!

John
30/1

2.

DCS

The gm. W. now see (13). Did you fl. Annulate the interim report at (10A) to Commlens. The article should also be duplicated pl.

John
30/2/75

3

DCS

17 Air Service advised authority flight. Carcass - West Point also Harnadine
see: R/T.

27.2.75

4

~~CS~~ CS

4

(14) a) We have always accepted the cost of internal airfares and consider we should continue to do so

(14) b) has been dealt with

(14) c) I think that we should approach FCO for funds and not Harrodine. If he has anything else to raise moneywise he should let us know so we can go to FCO without having to go back several times

ptm
28/2

5.

25.

Th. a. 4/ Definitely Yes. And 7/ Please.

With you also please arrange for. Please and Mrs Hunt c copy of (15)

3/4/3

6

To me 20/3/75
ptm

on

(28) iv Pl have someone check + see what is still to arrive and tell Harrodine

ptm 11/4

7.

Yes

We still await: Folding Magnifier, Telescope, Microscope slides

14.4.25

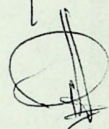
8

PK
June 7. Any indication when
items likely to arrive? Where
is order which was placed for these
items?

~~John~~ 14/4

9

~~CS~~
H. see pages 29+33 in Vol I of 400/5/M



16.4.75.

10

CS
June (28) para 2. iv. Minute
7 shows items not received to date.

~~John~~
16.4.75

11

~~CS~~
Th. a. OM shd send remainder to CA pl

5th 16/4

12

om

As in 11 pl

~~John~~ 17/4

13

om

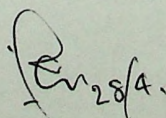
you are dealing with (42)?

~~John~~
28/4

14

DCS

42 Actioned

 28/4.

15

Bu 2/5/75
Bu 12/5/75

em

I think we are up to date
on Hamadine's requests? You
have nothing further to do for him?

~~26/5~~

DCS

No.

16

~~26/5~~

~~26/5~~

Bu 10/6/75

~~26/5~~

17

Bu 18/6/75

Pl see from (53) regarding the
proposed visit of De Hockere
which we have accepted. (61)
indicates De Hockere's visit
should co-incide with the laying
season mid September mid October.

~~26/5~~ 18/6

18

1) BS

Thank you

Re. inform of
Answer. (61)

I agree
Hamadine, 6
18/6

19

Dec 3

19

Ref (81) please see (37)
FS. advises that Haradine's estimates
have been approved. (E. 3/1/75)

20

Dec 5

Pl. write H that SFA have said they see
no real need in general consultations w. them
at present time, especially as they are deeply
involved in general wage agreement. As ERAS
have a meeting because only 1 of c. It has
proved impracticable to sub H in.

5.6.75

21

File Note:

20 over taken by events. Haradine flew
in 21/7/75 21/7/75

22

One

- I { Pl let Mr H. have a copy
of the Estimates and brief
him if necessary on procedures.
- II { Explain that nothing is circulated
on Estimates until the Fin Sec receives
the Provisional Warrant from HE
authorising expenditure ie it is not
when heq co passes the Appropriation Ordinance
that Depts can start spending. 21/7/75

DCS Ref 22 I Done.

II Provisional GW from H.E. effective
14 July 1975 Treas. Civ 4/75 refers.

Ln.
25/7/75

DCS

I have spoken to Harradine about his recent letter and will be grateful if you will now proceed on the following lines:

Write to ODM for an extension of his contract by one year, emphasising that this is to enable him to complete the study. The extension is required for scientific reasons relating to the study and also, and most importantly, so that he can liaise with Campbell Kerr to their mutual advantage.

2. Will you also look at Harradine's Agreement and if possible propose that he goes on leave in UK starting in May or June for 3 months of his ~~which~~ is his entitlement.

3. It should take about 4 weeks, I suppose, to get a reply from ODM about this. Then write to McGill asking him if he will extend the tenancy of the house to Harradine until March next year on a month to month basis. I understand that McGill wants to increase the rent to £25 per month but I think it will be prudent to let him suggest this.

CS

1.8.75

25

CS
Para 2 of 24. Harradine was appointed for two years - see ① in his file. He would be eligible for leave (if he is granted an extension); para 9 of ① refers.

We are holding off on the extension for the time being.

20th. 19/8

Subject to
approval by SAC

94

DCS

1/3 25 guide comm. ① ext 2 1/2 years
as the standard tour after wh. leave
may be granted.

5.9.8

KIV (97) + (98) too.

27

CS

As I see it, if Harradine
succeeds in obtaining an extension
of one year he would if ~~own~~
agreed be eligible for leave.
Harradine is here for two years
and not the 2 1/2 year tour. If
he has an extension he will have
served three years (provided he gets
no leave). This is longer than any
other officer.

20.8.75

28

H.F.

EXTENSION OF TOUR FOR HARRADINE

You will recall that Exco decided that the question whether
Harradine should be allowed to extend his tour and take intervening
overseas leave should be deferred until Dr. Lockie, Harradine's
supervisor at Edinburgh, had come out here.

At 95 Carlisle wrote that Dr. Lockie will not be here until early
1976, if at all. Meantime, the question of an extension for
Harradine has become urgent because, depending upon the decision,
rests the question whether he should transfer from Carcass Island
to one of the main Islands. If his tour is not to be extended, he
must transfer now with some loss to the study. If his tour is
extended, he will transfer later.

The reasons for the extension are technical ones and it is very
difficult for a lay person to assess the cogency of the arguments
used. However - particularly in view of Mr. Kerr's report at 98 -
I feel we should go now for an extension to Harradine's tour.

If Y.F. agrees, I shall propose to F.C.O. that the tour be extended
by one year and that Harradine takes leave due to him, commencing
in March, 1976.

21.8.75

29

C.S. I agree. I think
of Kess's view about
the case for an extension of
1 year.

22/8

30

DCS
A. Kiv (100) 5^m
26/8

C.S.
Noted 26/8

C.S.

32 Bu 28/9/75

C.S.
Ref (103) Presumably Harzadine
wants to continue in service until end
May then go on leave and return for
a full year. This is more than (100) requests.
10/9/75

DCS. 33 See 8/11 for correspondence
re extension.

Cheif Secretary,
Stanley.

Hill Cove
West Falkland

For circulation to all members of SFC.

20th Dec 1974

VISIT TO CARCASE ISLAND TUESDAY 17 th Dec

I arrived at Carcase island at about 11.30 and had about 2½ hrs on the island, during which time, I had talks with Mr. Haradine, Mr. C Bertrand and Mr. & Mrs. McGill. It did not seem worthwhile going around the various experimental plots and so I concentrated on talking to Mr. Haradine and the other Carcase Residents.

Aims of the work. The aims of the work being done on Carcase and the other experimental sites, seem to be to evaluate the amount of feed consumed by geese and sheep on various areas, namely coastal greens and green vallys, improved pasture, good native camp, oats and kale. And to check the value of goose droppings and see to what extent the geese are seed carriers.

Methods There are three type of exclosures at all the experimental sites. One keeps out all grazers, one keeps out sheep and one is open to all. There is ~~also~~ also one site where Mr. Haradine is checking the effect of the fence on growth. All sites are clipped at two month intervals and the herbage removed for examination. The dead material is removed from each sample which is taken from a measured area, and then the samples are dehydrated and weighed. By comparason of the weights from the three plots at each site it should be possible to get the amount of herbage consumed at each area. It was for this drying that the running of the cooker was requested as the samples must not be charred but just dehydrated.

Sugestions to Haradine. I suggested that Haradine should shortly after the Christmas holiday ^{go into Stanley} and examine the possibility of using the grass oven left by the Davies team. Also find out if the Lab Technician has time and can help by doing the drying and some of the sorting. I also thought it would be a good idea if he saw the C.S. and the Agric Officer and explained to them his plans and problems.

I recomended that Haradine should draw up a quarterly programme for Government, so that the Admin in Stanley knew wh t he would be doing, in outline at lease, at any time.

Haradine. I am sure that Haradine is working hard at his job and that he will produce acceptable results, if this is possible, as to the degree of competition of geese with sheep. These results would be usable against the ~~conservationist lobby~~ likable person nor easy to get on with and gives one the impression of being a spoilt little boy. He has little practical common sense or idea of how to make do or mend. In fact McGill says it easier if he leaves things alone because if he trys to fix his rover he does more damage than good

I am under the impression that Haradine was not very well briefed before he started as to the conditions regarding housing and being the person he is he does not invite assistance.

However the McGills although they do not particularly like him, are prepared to put up with him and will mend, fix and cart his bits and pieces. I therefore recomend that Haradine should continue on Carcase and not loose the work he has done already.

L.P. Bluh

Insert at A

conservationist lobby. Haradine is not a

O.M.

Send copies to Councilors & my compliments.

(2)

Chief Secretary
Stanley

Hill Cove
West Falkland

2/1

20th December 1974

For circulation to all members of SFC

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2a

- 2 -

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L G Blake

CFEJ

Fco/5/11

Carcass Island

Agricultural Department,
Stanley, Falkland Islands,

~~EB~~ (S)



1st Jan. 1975.

Dear Sir,

Thank you for arranging the visit of the Hon. L.G. Blake. I think it has helped a great deal to smooth out some of the difficulties that have occurred during the past partly due, it would seem, to inadequate communication and information after my arrival in the Colony. I think now that both sides better understand some of the problems and constraints that affect the other and I look forward to being able to work in closer cooperation with the Government in the future.

Some of the recent difficulties have, at times, caused a great deal of frustration and if during the time I have caused any offence, I apologise.

I am preparing an interim report on the goose study and will forward it in the near future.

As it is the first day of the year may I wish you a Happy New Year.

Yours sincerely John Hannadine

MEMORANDUM

alt (3)

FCO/5/11

Reference

Date 2nd January, 1975

From Superintendent of Public Works

To Chief Secretary

HARRADINE'S VEHICLE.

The Workshop Supervisor visited Mr.Harradine on Carcass Island and he has reported to me that after a few minor adjustments to the clutch and so on he left the vehicle in good order.

Five gallons of oil was taken with Mr.Clarke to Carcass Island, and since then a drum of oil has been sent.

The vehicle has been fitted with the other type of tyres as instructed.

B. Lunn.

SPW





Carcass Island

5th Jan. 1975

10

Dear Sir,

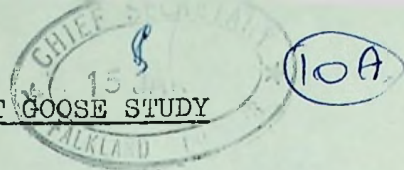
I have written an article for the F.I. Journal entitled "Geese in the Falkland Islands". It is an historical account of the geese since man first discovered and then settled in the Islands, described the development of the 'goose problem' and the measures taken, culminating in the appointment of an ornithologist to make a study of it. I have been careful in what I have written in order to avoid misunderstanding, in relation to my position as scientific investigator of the goose problem. I have, however, made some personal comments and assessments based on my understanding of the problem but none anticipates any finding that might arise from the

study I am conducting.

If you would prefer to read the article before I submit it for publishing
I will arrange to send a copy to you.

Yours sincerely

Jeha Haradin



Before my arrival in the Falklands I was given virtually no information on the nature of the 'goose problem'. In order to obtain basic information, therefore, on its nature, extent and severity and to appreciate the variation of opinion throughout the Islands, I sent a questionnaire to all farms. This was followed by visits to most farms to meet the farmers concerned with the problem and to select suitable study areas (consistent with adequate accommodation).

On the basis of the information so collected I considered Carcass Island the most suitable area to begin the study mainly because of its large, accessible population of both geese species claimed to be troublesome and the virtual absence of past or present disturbance. This is a most important feature.

Given my terms of reference and farmers' views it seemed that the problem became essentially a) how much more food would be available for sheep in the absence of geese and b) to what extent geese improve vegetation growth by their grazing and faecal production. The relationship between these factors would allow an evaluation of the impact of geese on the sheep industry.

My main effort to date, therefore, has been to establish means of assessing a) above. Large cages have been built on several sites on Carcass so as to exclude both sheep and geese from part of each site, sheep only from another part and to allow free grazing by both on a third part. Every two months (at present) the vegetation from each area is sampled by clipping it to ground level from up to 30 sub-plots per site. Constituent species and dead material have to be separated before drying each component to a constant weight. This procedure should indicate the proportion of vegetation eaten separately by sheep and geese.

The sites were chosen to represent some of the areas considered by many farmers most attractive to geese, that is, settlement paddocks, coastal greens and Yorkshire Fog pastures. Another site will evaluate the effect of enclosure per se on the growth of the vegetation enclosed.

Outside of Carcass similar work will shortly begin at Roy Cove where considerable reseedling work has attracted many geese. Also, if possible, goose damage to hay fields will be investigated by similar means.

At Teal Inlet a comparable investigation of brent goose pressure on settlement paddocks is just underway.

Pasture damage is not the only source of complaint for geese are claimed to delay or reduce arable crop harvests. Consequently I have established two appropriate experiments at Fox Bay East on the oat and rape crops. Monthly sampling will be necessary here until the harvest whereas two-monthly sampling (at most) will be required at the other farms.

The above approach necessitates cages permanently fixed. To overcome this limitation and to obtain more comprehensive data on feeding habits I am studying them also by gut, and, perhaps later, faecal analysis techniques whereby, by microscopical investigation, preferred food items are identified for comparison with those of sheep.

With regard to b) above I am collecting data on rates and weights of dropping production from free and captive geese. These data provide another means of estimating food consumption. I have established, recently, an experiment to investigate the manurial value of droppings on vegetation growth and am arranging for chemical analyses of pasture and dropping samples in Edinburgh.

While these two aspects must take priority given the limited time and resources that I have, other studies are being conducted where possible. These include reproductive ecology, involving estimates of egg-production, hatching success and gosling survival; disease, which seems most prevalent on smaller islands and movements, particularly between islands and the mainland.

I have been able to attract a number of individuals in the Islands to extend the study by collecting information for me from various places on the mainland.

I feel I should point out that it has taken a long time to establish the main work and it is sometimes a difficult environment in which to work. Also some important equipment ordered in April still has not arrived (and is not expected for weeks); this has prevented part of the reproductive ecology study for this year, is delaying the movements study and seriously delaying the analysis of accumulating vegetation

from all cages.

Future Lines of Study

These will include the continuation of all studies described above in order to collect an adequate amount of data. In addition I will be measuring, by dropping count and vegetation analysis techniques, goose preference for and impact on newly reseeded grassland, including the grass mixture and new species trials that some farms are assessing. Farms likely to be visited for this purpose are Roy Cove, Teal Inlet and San Carlos. Farms experiencing predicted or unexpected interference with crops also will be visited; for example Port Howard.

John Hammond

9th Jan. 1975

PROGRESS REPORT OF THE UPLAND AND BRENT GOOSE STUDY

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John Harradine

9th January 1975.

REF: FCO/5/11

9th January

75

Mr. J. Harradine,
Carcass Island.

Dear Harradine,

It was very kind of you to write to me on the lines of your letter of the 1st January, and I certainly appreciate the difficulties that you encountered. It is nice to know that you are aware of our problems as well.

2. I am very glad that you found the visit of Mr. Blake useful. I have had his report and I now look forward to receiving your interim report in due course.

With very best regards to you and your wife,

Yours sincerely,

A.J.P. Monk
Chief Secretary

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS**RECEIVED**

P2538 14776/32/401381 500 11/66 R. Ward 843

Number	Office of Origin	Words	Handed in at	Date
114	Carcass Is.	21	1030	10 1 75

To

ETAT Chief Secretary Stanley

East
Grateful for approval for flights to Fox Bay, Carcass, Roy Cove starting
15th. details to follow on first plane

Harradine

Reply at (8)

Time

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

SENT

(8)

Number	Office of Origin	Words	Handed in at	Date
				13.1.75
To	HARRADINE	CARCASS ISLAND		

VISITS FOX BAY EAST AND ROY COVE APPROVED

CHIEF SECRETARY

Time

2.15

TCO/5/11

(9)

13th January

75

Dear Sir,

I refer to my telegram of 2nd December 1974 which requested the cost of using the oven and of running the generator specially for you if this proved necessary. Please advise me of the position and the likely costs.

2. While on the subject of expenditure you should be aware that the Treasury will shortly be calling for Estimates and it would be wise to start thinking about your requirements for 1975/76.

Yours faithfully,



(D R Morrison)
for CHIEF SECRETARY.

J Harradine Esq
Carcass Island

CFBJ

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

SENT

Number	Office of Origin	Words	Handed in at	Date
--------	------------------	-------	--------------	------

22.1.75

To

HARRADINE CARCASS ISLAND

YOUR LETTER 5TH JANUARY. PLEASE FORWARD COPY OF ARTICLE
FOR FALKLAND ISLAND JOURNAL.

CHIEF SECRETARY

Time

Carcass Island
24th Jan. 1975



(12)

Dear Sir,

Thank you for your letter of the 13th. January.

I am afraid I have not used the oven or generator yet. This is because the sampling programme got well behind schedule and only after it could the oven be used. Then, during his visit, Tim Blake suggested sending samples to the Hospital laboratory to be dried in the much larger and more efficient oven by Jane Kerr. At the time I doubted the feasibility of the idea but agreed to look into it.

When I was able to start work on the grass samples just before the recent visits to other farms the idea did become more feasible and highly desirable, in fact, as a means of saving me a significant amount of time.

The next step, I think, is to visit the Hospital in order to find out from the S.M.O. whether the technician could help me in this way and to work out the best way of dealing with the material and the volume of this work she could handle.

I would be grateful for approval to make this visit in the near future and at the same time would like to take the opportunity of meeting you.

I note the reminder that my estimates for 1975/6 will be required shortly.

Yours sincerely
John Haradine

Ref: FCO/5/11

4th February

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J. Harradine, Esq.,
Caracas Island.

Dear

Thank you for your letter of 24th January. I agree that you should visit the hospital to discuss with the SMO whether you can use the hospital laboratory for your purposes, and you should accordingly make suitable arrangements with him. To ease this I have copied my reply to the SMO. It would be pleasant to meet you when you come in and I look forward to this.

2. I have also read your interesting article for the Falkland Islands Journal. The Journal is, in fact, going through a difficult period at the moment. It would be very useful to incorporate it in the Journal, but I wonder if you agree that it would be useful to circulate it on a limited basis in rounded form initially. If you do perhaps you will let me know the number of copies that will be necessary.

3. I shall, of course, let the Editorial Committee of the Journal have a copy and will not circulate it without your agreement. Probably Councillors would be interested to read it though, and you might agree that I should have copies made for each of them.

4. Meantime I am circulating a copy of your interim Report to Councillors and I thank you for this.

With best wishes.

A. J. P. Monk
Chief Secretary

NOTES TO THE PRINTER

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a) There is a footnote applying to the page or pages containing the asterisks given on page 5 of the text -- please insert the following appropriately:-

* These words proved difficult or impossible to decipher from the original hand.

b) While in the body of the text I may have made a few spelling mistakes please reproduce faithfully the spelling given within all the quotes.

Upland Goose File (NOT the Hotel-
the Upland
Goose Study
file)

GEESE IN THE FALKLAND ISLANDS

by

John Harradine BSc.

"I cannot call to mind any other settlement (except perhaps Tristan da Cunha) more dismal, miserable, and devoid of all interest than this at the Falkland Islands - the geese were so tame that we had to give up shooting them."

W.J.J.Spry, HMS Challenger, 1877.

"There are three kinds of Geese. The Upland Geese are very useful, firstly for the feathers which we use for making beds, and secondly the flesh is good for eating."

Flora Braxton, Aged 10, Falkland Islands Magazine, 1914.

General Taxonomy and Description

There are four species of geese found in the Falkland Islands, the upland or greater Magellan (Chloephaga picta leucoptera), ruddy-headed or, locally, brent (C. rubidiceps), ashy-headed (C. poliocephala) and the kelp goose (C. hybrida malvinarum). In fact these geese are not true geese but are sheldgeese and are more closely related to the ducks. The duck family, Anatidae (in the Order Anseriformes), comprises 247 forms belonging to about 150 species which in turn are grouped into 43 genera. These genera are placed in 10 tribes. In the sub-family Anserinae is the tribe Anserini which contains the swans and "true geese". There are 14 species of true geese divided into the "grey" geese (genus *Anser*) and "black" geese (*Branta*). In the latter genus is found the brent goose which breeds in the Arctic and winters in temperate countries, including Britain. As will be seen below this species is not the "brent" goose of the Falklands. The true geese are confined to the northern hemisphere; they are wary birds and they graze in flocks (or "gaggles") and fly in characteristic formations ("skeins"). They also show a large number of distinct geographical races; these have confused the definition of species and explain the difference in the numbers given above of forms and species.

In the sub-family Anatinae is placed the tribe Tadornini and it is here that the shelducks and sheldgeese are found. The genus *Chloephaga* contains these goose-like grazing birds. They are characterised by intolerance of and aggression towards birds of their own tribe; they generally flock when immature and outside the breeding season but are never truly gregarious as are the true geese; they mate for life and the two sexes have different displays. Another distinguishing feature is the location of the speculum (the iridescent median coverts on the wing); the true ducks (tribe Anatini) also have a speculum but their's is on the secondary flight feathers. The anatomy and behaviour, particularly courtship display, of the sheldgeese are more like those of the ducks; hence they are classified with them. An Australian species, Cereopsis novaehollandiae, the Cape Barren goose, is thought to link the sheldgeese with the true geese although its own taxonomic position has not been established easily.

The genus *Chloephaga* is confined to the cooler parts of South

America and contains five species, the four mentioned previously and the Andean goose (C. melanoptera). All are terrestrial grazing birds except the kelp goose which has adapted to a maritime habitat, utilising the seaweeds along the shore-line. C. picta, however, occurs as two sub-species, C. p. picta, the lesser Magellan goose, which breeds in southern Chile and Argentina south to latitude 36°, and the larger C. p. leucoptera, the Falkland Island sub-species. Occasionally individuals of the former reach the Islands. Further, C. p. picta occurs in two colour phases, one with pure white underparts (in the males) and the other with heavily barred underparts. The proportions of the phases vary: in Tierra del Fuego the dark one predominates while in Patagonia the reverse tends to occur. There are also two sub-species among C. hybrida, the kelp goose, with the Falkland Island form C. h. malvinarum being larger than the South American form.

Two of the species show a very clear sexual dimorphism in their plumage; in C. h. malvinarum the male is pure white, except for the soft parts, while the female is very darkly feathered and in C. p. leucoptera the gander is mostly white with black and grey markings while the goose is basically brown with black barring. In the other species it is difficult to distinguish the sexes from their plumage alone. Another interesting feature concerns the pattern of moulting ("shedding") after the breeding season, the main purpose of which is to renew worn or faded plumage. All birds moult at least once a year and the frequency and pattern of moulting varies considerably within and between species. In the Anatidae the flight feathers tend to be shed simultaneously resulting in a period of flightlessness. However, some individuals of C. rubidiceps shed their feathers progressively and so avoid flightlessness; this may occur also among C. picta.

Geese in the History of the Falklands

From the records of the early explorers to and settlers in the Islands geese clearly have been present for several hundred years. One of the earliest records is an extract from the log book of Captain

John Strong, dated Monday, January 27, 1689-90, who, in the Welfare, sailed between the two main islands and named the passage the Falkland Sound from which the archipelago eventually took its name. Although the island group was first discovered in 1592 by John Davis in the Desire (this claim has been disputed, however), and visited twice more in that decade by other explorers, John Strong was the first to land. He wrote "Wednesday this morning wee weighed and stood into an Harbour on the Wt. side and there came to an Anchor and sent our boats on Shoar for fresh water and wee did kill abundance of Geese and ducks, ...".

Subsequent to this visit most other records relate to Berkeley Sound in East Falkland and to the north coastal part of West Falkland probably because the first settlement was established at Port Louis, ^{in 1764,} by de Bougainville for the French and a year later Captain Byron took possession of the West Falkland for Britain, leaving a garrison at Port Egmont on Saunders Island. Two common observations were the numbers of geese everywhere and their remarkable tameness which allowed them to be taken so easily, for evidently they were ^amuch appreciated food. Thus Byron, writing of Port Egmont to the Earl of Egmont in 1765, described how there were "Wildfowl of different kinds in such numbers that Our People lived upon nothing else whilst we were there. It was seldom that We took less than one hundred wild Geese in a day for each ship, and that by only knocking them down with stones". It seems though that, in ecological terms, they over-exploited their food resources for, in 1770, Captain Anthony Hunt of the sloop Tamar, reported how "At our first coming to Port Egmont we found great plenty of wild Geese, which now are so scarce, that we were obliged to go a considerable distance to get any number of them". However, five years later, John Hawkesworth wrote "In every part of Port Egmont ...geese, ducks, snipes, and other birds are so numerous that our people grew tired of them: it was a common thing for a boat to bring off sixty or seventy fine geese, without expending a single charge of powder and shot, for the men knocked down as many as they pleased with stones:...".

One of the first descriptions of the geese seems to be that of S.W. Clayton in 1774, again from around Port Egmont. He observed that

"after Dec^r. commences the wild geese are grown fit food, & their young large enough to eat ...", and then that ..."Of geese these are three sorts. Firstly the mountain goose of a small sort about the size of a Muscovy Duck, speckled on the back, & growny * greenish with a glossy * ----- * near the neck: under its throat it is brownish: the wings are beautiful with glossy golden coloured feathers; the flesh is excellent & delicate -- secondly, the common wild or painted goose, nearly coloured as the other, but much larger: the ganders are black & white mottled: these are very good food. -- Thirdly, the Sea Goose, feeding always along shore, mottled black & white: the Ganders of these are quite white: they are only eatable when made into soup. -- The two first kinds of geese feed entirely on grass, & in summer on the wild cranberries: they lay in Sep^r. & Oct^r. & about Dec^r. , being moulting time, are easily run down & taken ". Evidently some geese were domesticated for"... they soon take to wheat, yet if even they can get loose, & see any of the flocks of wild ones, away they join them directly".

One gentleman, B. Penrose, it seems left Port Egmont in 1772 with some disappointment in the gardens and their produce, for he recorded that "...onions, the savoury ingredient so necessary to render our geese truly delicious, were sadly wanting:...".

Around Port Louis at about the same time geese were also abundant. Dom Pernety, who sailed with de Bo ugainville, described , in his Historical Journal of 1771, how they "found a prodigious number of bustards (as they called the upland goose) in flocks of twenty or forty,...", "which did not fly away when we approached them; but walked near us, as if they had been tame." Clearly they were appreciated on the table for he wrote "Red shanks and sea-pies are very good here; but the bustards in particular are exquisite, either boiled, roasted, or fricassed.". He went on to comment "It is hardly to be conceived, that the ship's company of our two frigates, consisting of an hundred and fifty men, all in perfect health, and with good stomachs, should have found a quantity of these birds sufficient for their subsistence during a stay of more than two months, within a tract of country not exceeding three leagues.". He also observed how the wings of the kelp geese resembled those of the bustard, having "a hard knob like

a horn at the articulation of the pinion" and discovered, beneath the large feathers, "a grey down extremely fine and very thick... at least as beautiful as that of a swan. They would make beautiful muffs.". In fact several men ordered many geese and bustards to be skinned to take the down back to France; however, the skins were subsequently lost.

de Bougainville also made some interesting observations on the geese. "Four species of wild-geese made part of our greatest riches. The first only feeds on dry land; and has, improperly, been called bustard. Its high legs serve to elevate it above the tall grass, and its long neck to observe any danger. It walks and flies with great ease, and has not that disagreeable cackling cry, peculiar to the rest of its kind. The plumage of the male is white mixed with black and ash-colour on the wings. The female is yellow; and its wings are adorned with changing colours; it generally lays six eggs. Its flesh is wholesome, nourishing, and palatable; it seldom happened that we had any scarcity of this kind of geese; for besides these which are bred in the isle, they come in great flocks in autumn, with the east wind, probably from some uninhabited country. The sportsmen easily distinguish these new-comers, by the little fear they show of men. The other three species are not so much in request; for they feed on fish, and get a trainy taste. Their figure is not so elegant as that of the first species; one of these kinds seldom rises above the water, and is very noisy. The colours of their feathers are chiefly white, black, yellow, and ash-colour. All these species, and likewise the swan, have a soft down under the feathers; which is white or grey, and very thick.". Another of de Bougainville's observations is also worthy of note: "Two small fruits,... were the only ones... in autumn. Those which grew upon the bushes were good for nothing, excepting for children, who will eat the worst of fruits, and for wildfowl.". These were probably diddle-dee.

In 1766 the Spaniards bought the French out of Port Louis and renamed the port Soledad (and the Falklands "Islas Malvinas"). Then they forcibly ejected the British from Port Egmont and almost caused an Anglo-Spanish war, before restoring the settlement to Britain. A few years later the British left the Islands and in the early 1800's

the Spanish did likewise. In 1829 Louis Vernet from Argentina established a new colony at Port Louis but was expelled in 1833 by the British who resumed occupation of the Islands, maintaining their continued claim to sovereignty. These activities probably explain the scarcity of literature about the Islands from the 1770's to the 1830's.

There were numerous communications to Britain from the reoccupied East Falkland in 1833 and onwards, describing the features of the Islands and clearly the presence of the geese was considered favourably. Thus Captain John James Onslow, on the sloop Clio, reported back to Britain that "The East Falkland is capable of being easily brought into cultivation; the soil has produced all sorts of vegetables; the interior abounds in wild cattle, horses, hogs, rabbits, ducks and geese, which when caught young are easily tamed and afford good stock to the settlers;...".

R. Montgomery Martin, in describing the British Colonies in 1835, wrote of the great abundance of birds and of their tameness, and particularly of the geese: "...two kinds were distinguished, the lowland or kelp-geese, and the upland geese; the latter were much superior in flavour, the former being of a fishy taste, living chiefly on mussels, shrimps, and kelp. Both were very tame, and the upland geese were easily domesticated. They are finest eating in autumn, being then plump, in consequence at that season of tea-berries, of which they are very fond: the rest of the year they live on the short grass.". Governor Moody, the first Governor of the British Colony, in his Despatch to Lord Stanley in 1842, made similar observations on the geese, including though, the brent goose which, with the upland goose, was "excellent eating."

Charles Darwin visited the Falklands on his voyage around the world and, not unexpectedly, made rather more precise observations than previous visitors. He travelled around Berkeley Sound and wrote (1845) "The country is uniformly the same undulating moorland; the surface being covered by light brown withered grass and a few very small shrubs, all springing out of an elastic peaty soil. In the valleys here and there might be seen a small flock of wild geese...". Later, he recorded

his observations on the geese: "Two kinds of geese frequent the Falklands. The upland species (*Anas Magellanica*) is common, in pairs and in small flocks, throughout the island. They do not migrate, but build on the small outlying islets. This is supposed to be from fear of the foxes: and it is perhaps from the same cause that these birds, though very tame by day, are shy and wild in the dusk of the evening. They live entirely on vegetable matter.". Many other of the earlier writers mentioned the foxes ("wolf-fox" or "warrah") and how they apparently preyed quite heavily on the geese and their eggs and goslings.

Evidently geese were still abundant on the West Falkland at this time for W. Parker Snow (1857) landed on Saunders Island and found "two sorts of geese, always in pairs or threes, even when in a flock; ..." and "Thousands would not be too expressive a term to apply to the numbers scattered about before our eyes in all directions.". However, once again it seems there was too much of a good thing for "The men... were already getting tired of them, and had asked for salt meat again."!

Finally, a note by a naturalist, H.N. Moseley, on one of the

Challenger expeditions: "Flocks of the geese were to be seen there (Darwin Harbour) feeding on the grass close to the houses, looking just like farmyard geese. The birds take no notice of a gun, but I soon found that they were very quick at seeing a bolas...". The geese certainly still graze around settlement houses today but they have come to fear the gun much more than they did over a century ago.

Geese and Sheep Farming

The early settlers and sealers introduced sheep to the Falklands, keeping them and other stock on the tussac islands, as a source of food. The first attempts at sheep farming, in 1841 with English and Argentinian stock, were doomed to failure through scab disease. Governor Moody was involved in another attempt four years later, which nearly failed again. However, in 1852 the Falkland Island Company had more success and by 1860 Governor Moore was able to write "sheep bid fair to become one of the staple commodities of the Islands.". A decade later Governor D'Arcy attributed the success of wool production to , among other factors, the succulent grasses which kept production costs low. In the mid-1870's the industry was prospering and sheep numbers

were increasing rapidly. In 1876, however, scab recurred and spread quickly, through lack of fencing and insufficient man-power for shepherding, but, although it was a serious disease, the industry continued to prosper. An unsuccessful attempt had been made previously to tax farmers to fund a scab control campaign. In 1895, though, another attempt succeeded and the Scab Ordinance was passed. It was strictly enforced and soon resulted in the disappearance of the disease. Subsequently the numbers of sheep in the Islands increased and reached a peak of 807,000 by the end of the nineteenth century.

By 1900, however, it seemed that the quality of the pastures was declining and the large numbers of geese, which evidently preferred the best pastures, caused pressure to mount from farmers to reduce their numbers, (from seven to four geese were claimed to eat as much grass as one sheep). The farmers suggested 150,000 geese should be eliminated annually and, to encourage their destruction, that the Scab Fund should pay 15/- for every 100 beaks. Governor Grey Wilson could not sympathise

with the farmers' requests. In a letter to a Mr. Lyttelton in 1904 he gave his reasons: "The Falkland Islands goose is excellent eating, being preferred by many to the domestic variety, and it is remarkable in these utilitarian days that no scheme has been devised for preserving the three-quarters to one million pounds of food and marketing the high class down, which this so termed locust-like scourge renders available. In addition to the present destruction of birds vast quantities of eggs are broken."

Inevitably the issue raised much controversy and not only within the Falklands for it was featured in English newspapers in mid-1904. Countering the farmers' claims were those who claimed that the geese improved the pastures by their droppings, which contained valuable minerals, that they were an important change of diet for the Camp community and a valuable alternative to mutton for the dogs in winter. While the two latter claims were no doubt fair, it is unlikely the claim over the manurial value of droppings, or, for that matter, the relation between goose and sheep feeding requirements, was based on any objective criteria. It should be made clear that not all farmers considered the geese a pest and while some persecuted them and also encouraged boys

to kill them (for ten shillings per hundred beaks), others left them alone.

Eventually, however, the Livestock Ordinance of 1901 was amended and an Ordinance for the "diminishing of geese" was passed in 1905 whereby provision was made for beaks to be bought by the Government at 10/- per 100, out of the Scab Fund. Apparently this legislation was passed by a small majority. In order to exert some control on the campaign the maximum number of beaks to be bought annually from both the East and West Falkland was to be determined by the Governor in Council. The first limits were set at 25,000 from each of East and West Falkland from the 30th. September until the end of that year and the number of beaks bought were 24,530 and 248, respectively (according to official records).

Evidently this rate of reduction was considered inadequate and the 1906 limits were set at 50,000 from each main island, although geese were reported to be diminishing in various parts. In that year 23,260 and 21,700 beaks, respectively, were sold to the Government. In the following year the Ordinance was extended to the end of 1912, and, to begin with, up to 37,500 were to be bought from each area but in July, for some reason, it became necessary to raise the limit to 50,000 from East Falkland. In fact the records show 46,840 were bought from there while 28,185 were bought from West Falkland. Thereafter, until 1912, 37,500 beaks were to be bought each year from each of the main islands. The records are scanty and sometimes confusing but whereas in 1908 37,525 from the East and 14,455 from the West were bought, it seems that in 1909 a similar number was bought from the East but nearly 52,000 were bought from the West Falkland.

However, recording the end of the Ordinance in 1912, the then Inspector of Stock reported, that, during its existence, about half a million beaks had been bought by the Government. In fact, using the appropriate annual ^{expenditure} from the Scab Fund, the number was about 515,600.

Following the cessation of official payments for beaks there were some petitions from the West Falkland to continue them but these were not accepted. Some farmers, however, did continue the practice.

The next official pronouncement on the geese seems to have been in 1924 following the visit to the Falklands of H. Munro, of the Depart-

ment of Agriculture, New Zealand, to investigate the conditions and practice of the sheep farming industry. One of his conclusions was that a substantial reduction in the numbers of geese would be "highly desirable and would be very beneficial to the farming industry", though he appreciated their food and sporting value. He suggested farmers be obliged to destroy geese on their land and recommended discarding the previous system of control measures in favour of using the money for experimental work in order to find an effective means of reducing the pest. In fact he recommended grain poisoned with phosphorus. Such a move today would meet considerable opposition on ecological grounds, for the risk of direct and secondary poisoning to other species, and humanitarian grounds, for phosphorus is a very unpleasant poison (it was banned in Britain in 1962 for use against the brown rat mainly for this reason).

Following Munro's recommendations the Government announced it would no longer buy goose beaks (although apparently this had ended officially in 1912; records indicate, though, that payments were made for them subsequently) as there were "Other measures to reduce numbers being adopted.". There is no evidence, however, that these recommendations were carried out.

The effects of the campaign against the geese do not seem very clear for in 1920 T.R.St.-Johnstone, describing the goose problem, stated that "today the geese are kept within bounds", while V.F. Boyson, only four years later, wrote that despite the bounty and constant persecution the geese did not appear to be decreasing appreciably except near Stanley. In 1926 A.G. Bennet described the upland goose as "abundant".

However, whatever the true situation, St.-Johnstone suggested that, as they "are excellent eating,...so easy to catch, and yet so little desired by the farmers, that a good export trade in canned or frozen geese might be started with benefit to all concerned, to say nothing of the valuable "down" which could be utilized in the best class quilts.". Some twenty^{five} years later a similar suggestion was put forward by J.G. Gibbs in his report of the Department of Agriculture, Stanley. He anticipated a market in South America and in Britain, where the geese "well presented and in good condition, would bring ten to twelve shillings a head...". None of these ideas, it seems, was followed up.

The debate over the values of the geese, apart from the accepted ones of food and sport, and the more intangible aesthetic values, has continued over the years. Bennet suggested that, even if geese ate the grass they spread its seeds and later stated that "Certainly seeds of *Gunnera* (pigvine) and *Empetrum* (diddle-dee) are so carried.". This would be considered detrimental, however, by some people. The Inspector of Stock in 1935 voiced an argument propounded by many pro-geese people, that the geese are not detrimental for (when manager on Speedwell Island) he got 8lb. of wool per sheep on an area with "more geese than sheep". Now-a-days the association between large numbers of geese on several islands of the Falkland group, the higher density of sheep carried and the higher productivity of wool is used both by those for and against the geese. The former claim this shows both can co-exist and even that the geese help create or maintain the pastures which contribute towards such stocking densities while the latter claim that without the geese the islands' productivity would be significantly higher.

In 1946 J.G. Gibbs, the Agricultural Officer, summarised his view of the goose problem: "There can be no doubt that geese consume a large amount of the young and sweeter grasses, and they are particularly troublesome and destructive on newly sown pastures. On the other hand, their droppings must have a high manurial value. Whether their depredations on native pastures are greater than the benefit they bring is a very debatable point, and one which has not yet been demonstrated satisfactorily.". Nearly thirty years later this very debate still continues.

It is probably true to say that it is not so much the number of geese per se that worries their opponents as their habit of congregating on the best ground. Ecologically this is sound behaviour as a goose's chances of survival are improved if it can obtain sufficient high quality food with the minimum of energy-wasting searching. Many of the preferred areas have derived from the consolidation and manuring associated with frequent sheep movements, preferred sheep areas or sites of former penguin rookeries. Plant species composition and growth in these areas generally changes as a consequence and results in specially nutritious and productive pastures. Naturally enough,

as much as the geese favour such areas, so do the sheep and for the farmers these pastures can be particularly important, for example, for lambing, raising stud flocks and during shearing and dipping. Geese are considered by some also to delay or reduce the harvest of hay, cereal and green crops. Hence the conflict.

In 1969 an agricultural team arrived in the Falklands to advise on improving the productivity of the sheep industry. On the goose problem it concluded that "...during winter at least competition for this scarce commodity (grass) is serious..." and it "...is obviously to the disadvantage of the sheep. It is doubtful if greens do in fact get any rest from grazing at all -- even in camps being rested....". Further, the team recorded that goose deградations on newly reseeded areas (a continuing bone of contention for both sides of the argument, as geese often congregate on these areas) and arable fields were considerable and implied that they were serious because of the heavy investment in "this very necessary work". These conclusions were not based on a careful study of the impact of geese on the industry, however. The team recommended increased efforts to control considerably what it regarded as a major pest to the sheep farming, and that a pest control cum conservation specialist should study and advise on the problem.

Following the team's visit controversy recurred over a suggestion at a Sheep Owners' Association meeting in 1970 that a stupefying bait be used to control goose numbers. The conservationists immediately protested, as they could not accept large scale destruction for what, at most, they considered a local problem and as they objected to chemical control because of the risks of secondary poisoning, destruction of non-target species and other less obvious effects of poisons. Conservation organisations outside the Falklands became involved and all of them stressed the need for careful research into goose ecology and the goose problem before any drastic measures were taken against it.

Finally, in 1972 a follow-up to the team's investigation of the sheep industry endorsed its recommendations but emphasised the need for ecological studies before control measures were effected.

In the summer of 1973, following a recommendation by the Sheep

Owners' Association, a post for an ornithologist was advertised in Britain so that an evaluation of the goose problem could be made. The post was filled and a two year study was begun in the autumn of 1974 with the following terms of reference "To study the habits of the upland and brent geese with special reference to the effect that they have on the sheep farming industry but bearing in mind conservationist factors and the value of the geese as a tourist attraction and source of food and sport."

Conclusions

In reflecting on the history of the goose problem some pertinent observations can be made. The first must be that the geese were naturalised in the Falklands long before sheep were introduced. They have become a pest (in some peoples' view) only because they came to interfere with man's main interest in the Islands. Most pest situations in fact are created by man and not by the species concerned.

As the goose has been the only important competitor for the sheep grazing and as there always have been large numbers of geese, particularly on the better grazing, it is surprising that no steps were taken to assess their impact on the productivity of the Falkland Islands' wool industry soon after they were first claimed to be a pest. It was just over seventy years later that such a step was taken. The need to study various aspects of the goose problem was made clear several times during that period but evidently it was not considered important enough.

At various times in the past the value of geese for food and of their products for domestic use has been emphasised. Suggestions for developing a market for them have been made but apparently to little effect. This again is perhaps surprising as any economy dependent on a single commodity is liable to ups and downs and additional industries, albeit small ones, can help buffer the effects of a slump in the major one. The wool market has experienced a number of slumps in the past but no assessment of the potential of an exploitation of the geese of the Islands has been made.

A wide variety of ideas about the geese and their interaction with

the sheep has arisen, some of them with little foundation. The obvious association between geese, sheep and the best pastures leads inevitably to many interpretations but an understanding of the true relationships can be obtained only by an objective study of the many factors involved. It then becomes possible to evaluate the impact of geese on the sheep farming industry and, if action is needed, to make the right decisions.

Summary

It appears that geese of the genus *Chloephaga* inhabited the Falkland Islands before man discovered and colonised them. Throughout the history of his colonisation the geese have been abundant and, the upland and ruddy-headed species, have provided welcome sources of food, sport and feathers for domestic use. However, as sheep farming became the mainstay of the Islands' economy the feeding habits of the geese became increasingly unacceptable to many farmers who wanted the best pastures for their sheep.

At the beginning of this century the first major campaign against the geese began with an Ordinance allowing the Government to buy beaks from farmers in order to encourage the destruction of the birds. In seven years over half a million beaks were so bought.

Over the last seventy years there has been much debate over the goose problem with the anti-goose faction claiming the birds constituted a serious pest and demanding their reduction and the pro-goose faction objecting to unselective reductions in numbers over the Islands, at least until the ecology of the species is understood, any benefits of the birds evaluated and the likely effects of their reduction better known.

During the past fifty years agriculturists from inside and outside ~~of~~ the Islands, in advising the sheep industry on means of increasing its productivity, have concluded that the geese are a detrimental factor to the industry and that they should be reduced. The more recent ones have recommended ecological studies of the birds before control measures are organised against them. A scientific study of the goose problem is now in progress.

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GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS**RECEIVED**

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To
ETAT

CHIEF SECRETARY STANLEY

GRATEFUL APPROVAL FOR MONTHLY VISIT FOX BAY EAST WEDNESDAY 19TH.

HARRADINE

entered

Time

AGR/5/1

Copy

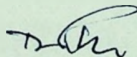
14th February 1975

A L C Thorne Esq CBE
Ministry of Overseas Development
Eland House
Stag Place
London SW1

Dear Sir,

As promised in paragraph 5 of my letter AGR/5/1 of the 22nd January 1975 I enclose two copies of a Report by John Harradine who is carrying out a study of the Upland and Brent Goose.

Yours faithfully,



(D R Morrison)
for CHIEF SECRETARY.

CFEJ

Minutes of the Standing Finance Committee Meeting held on 14th
February 1975 extracted to:- FCO/5/11

18

3. (2) UPLAND GOOSE INVESTIGATION (Min.3) FCO/5/11

The Chairman thanked Mr. Blake for his report on Mr. Harradine and the Upland Goose Investigation being carried out at Carcass Island. He said that the visit had improved relations with Harradine and helped put the study on a better footing. He said he had now received and circulated Harradine's interim report.

H. W. R. ft

With the Compliments
of the

Chief Secretary

L. S.

Mr. Speck. who
(Commissioned) Mr.

Stanley,

Falkland Islands.

Study

17.12

FCO/5/11



Carcass Island
Agricultural Department,
Stanley, Falkland Islands.

18th Feb 1975 19

Dear Sir,

Thank you for your letter of 4th February.

I shall arrange a visit to the Hospital laboratory as soon as I am able but this now cannot be until about the middle of March. Thank you for informing the SMO of my intentions.

There are some business matters I would like to raise.

- See (24) in FCO/5/11
- a) From my discussion with Tim Blake I gather that it is possible to have funds from the Estimates transferred from one Head to another if this is necessary. This being so I would be grateful if the £60 originally allowed for fertiliser, under Section II a of my Estimates, could be transferred to Section I to increase my allowance for Beaver flights for the rest of the financial year, as these are of considerable importance to the study.
- b) On the final visit of Humboldt Explorer this season (probably on 2nd March) will be Maurice Rumbell, of the Argentine Museum of Natural Sciences in B.A., who is making a study, comparable to my own, of the goose/agriculture interaction in Argentina. I have written to him previously and am very anxious to meet him to discuss our approaches and problems in the two studies. While it is possible the boat will call at Carcass as well as at West Point (the only scheduled stop) this will not be known until the day. I would be grateful therefore for approval to fly to West Point to ensure that I do meet him.
- Approval given 27/2
- c) In my interim report I mentioned the chemical analysis of goose droppings and pasture samples. I have received recently the estimated cost per sample - about £4. The programme I had planned would cost a minimum of £100 and a maximum of about £200. I wonder, therefore, if I should ask for this money from Technical Assistance funds or should I approach the F.C.O. directly?
- d) Finally, I refer to your letter of 22nd November 1974 (ref. FIS/10/1 Vol 2.) regarding my request to collect wildfowl eggs for the Wildfowl

Trust. I was to inform you of the numbers collected. In fact I was unable to supply the Trust with any eggs this season but I will be trying again in the 1975/76 breeding season and will inform you accordingly.

With regard to my article "Geese in the Falkland Islands" — I appreciate that the Journal has its problems at present and while I would like the article included in the next edition I realise it may not be in the near future. However, I am not quite sure of what you have in mind as an alternative. You suggest a limited circulation initially — would this be available to all members of the Colony depending on their application and so would it be advertised? Would a price be charged and where would the proceeds go? If priced then those who buy a copy might be discouraged from buying the same again in the subsequent edition of the Journal. I would be glad to hear of your thoughts on the subject.

I agree to copies being distributed to Councillors.

I look forward to hearing from you on these various matters.

With best wishes

John Hanadine

GOVERNMENT TELEGRAPH SERVICE

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328	Caracas	18	1400	27-2-75
To				
CHIEF SECRETARY STANLEY				

MY LETTER 18TH FEB. GREATFULL approval FOR
WEST POINT VISIT as FLIGHT MUST BE CONFIRMED
TODAY

·Harradine

Time

THE SECRETARIAT,

STANLEY, FALKLAND ISLANDS,

SOUTH ATLANTIC.

Ref: FCO/5/11

.....5th March.....19..75

To: All Councillors

Dear *W/S*

I attach an article on "Geese in the Falklands" written by John Harradine with the intention that it should be published in the Journal.

2. John Harradine agrees to this article being circulated to Councillors but, of course, copyright for it will remain with him until the Journal takes this over. Accordingly I am distributing this on a limited circulation only to Councillors.

Yours sincerely

A.J.P. Monk
A.J.P. Monk
Chief Secretary

H. Rowlands
S. Miller
W.E. Bowles
A.B. Monk
L.G. Blake
R.M. Pitts
L. Luxton

W.R. Luxton
Major Goss

GEESE IN THE FALKLAND ISLANDS

by

John Farradine B.Sc.

Copy No. 10.

"I cannot call to mind any other settlement (except perhaps Tristan da Cunha) more dismal, miserable, and devoid of all interest than this at the Falkland Islands - the geese were so tame that we had to give up shooting them."

W.J.J. Spry, HMS Challenger, 1877

"There are three kinds of Geese, the Upland Geese are very useful, firstly for the feathers which we use for making beds, and secondly the flesh is good for eating."

Flora Braxton, Aged 10, Falkland Islands Magazine, 1914

General Taxonomy and Description

There are four species of geese found in the Falkland Islands, the upland or greater Magellian (Chloephaga picta leucoptera), ruddy-headed or, locally, brent (C. rubidiceps), ashy-headed (C. poliocephala) and the kelp goose (C. hybrida malvinarum). In fact these geese are not true geese but are sheldgeese and are more closely related to the ducks. The duck family, Anatidae (in the Order Anseriformes), comprises 247 forms belonging to about 150 species which in turn are grouped into 43 genera. These genera are placed in 10 tribes. In the sub-family Anserinae is the tribe Anserini which contains the swans and "true geese". There are 14 species of true geese divided into the "grey" geese (genus Anser) and "black" geese (Branta). In the latter genus is found the brent goose which breeds in the Arctic and winters in temperate countries, including Britain. As will be seen below this species is not the "brent" goose of the Falklands. The true geese are confined to the norther hemisphere; they are wary birds and they graze in flocks (or 'gaggles') and fly in characteristic formations ('skeins'). They also show a large number of distinct geographical races; these have confused the definition of species and explain the difference in the numbers given above of forms and species.

In the sub-family Anatinae is placed the tribe Tadornini and it is here that the shelducks and sheldgeese are found. The genus Chloephaga contains these goose-like grazing birds. They are characterised by intolerance of and aggression towards birds of their own tribe; they generally flock when immature and outside the breeding season but are never truly gregarious as are the true geese; they mate for life and the two sexes have different displays. Another distinguishing feature is the location of the speculum (the iridescent median coverts on the wing); the true ducks (tribe Anatini) also have a speculum but their's is on the secondary flight feathers. The anatomy and behaviour, particularly courtship display, of the sheldgeese are more like those of the ducks; hence they are classified with them. An Australian species, Cereopsis novaehollandiae, the Cape Barren goose, is thought to link the sheldgeese with the true geese although its own taxonomic position has not been established easily.

The genus Chloephaga is confined to the cooler parts of South America and contains five species, the four mentioned previously and the Andean goose (C. melanoptera). All are terrestrial grazing birds except the kelp goose which has adapted to a

/maritime

maritime habitat, utilising the seaweeds along the shore-line. C. picta, however, occurs as two sub-species; C. p. picta, the lesser Magellian goose, which breeds in southern Chile and Argentina south to latitude 36°, and the larger C. p. leucoptera, the Falkland Islands sub-species. Occasionally individuals of the former reach the Islands. Further, C. p. picta occurs in two colour phases, one with pure white underparts (in the males) and the other with heavily barred underparts. The proportions of the phases vary; in Tierra del Fuego the dark one predominates while in Patagonia the reverse tends to occur. There are also two sub-species among C. hybrida, the kelp goose, with the Falkland Islands form C. h. malvinarum being larger than the South American form.

Two of the species show a very clear sexual dimorphism in their plumage; in C. h. malvinarum the male is pure white, except for the soft parts, while the female is very darkly feathered and in C. p. leucoptera the gander is mostly white with black and grey markings while the goose is basically brown with black barring. In the other species it is difficult to distinguish the sexes from their plumage alone. Another interesting feature concerns the pattern of moulting ("shedding") after the breeding season, the main purpose of which is to renew worn or faded plumage. All birds moult at least once a year and the frequency and pattern of moulting varies considerably within and between species. In the Anatidae the flight feathers tend to be shed simultaneously resulting in a period of flightlessness. However, some individuals of C. rubidiceps shed their feathers progressively and so avoid flightlessness; this may occur also among C. picta.

Geese in the History of the Falklands

From the records of the early explorers to and settlers in the Islands geese clearly have been present for several hundred years. One of the earliest records is an extract from the log book of Captain John Strong, dated Monday, January 27, 1689-90, who, in the *Welfare*, sailed between the two main islands and named the passage the Falkland Sound from which the archipelago eventually took its name. Although the Island group was first discovered in 1592 by John Davis in the *Desire* (this claim has been disputed, however), and visited twice more in that decade by other explorers, John Strong was the first to land. He wrote: "Wednesday this morning wee weighed and stood into an Harbour on the Wt. side and there came to an Anchor and sent our boats on Shoar for fresh water and wee did kill abundance of Geese and ducks, ...".

Subsequent to this visit most other records relate to Berkeley Sound in East Falkland and to the north coastal part of West Falkland probably because the first settlement was established at Port Louis in 1764 by de Bougainville for the French, and a year later Captain Byron took possession of the West Falkland for Britain, leaving a garrison at Port Egmont on Saunders Island. Two common observations were the numbers of geese everywhere and their remarkable tameness which allowed them to be taken so easily, for evidently they were a much appreciated food. Thus Byron, writing of Port Egmont to the Earl of Egmont in 1765, described how there were "Wildfowl of different kinds in such numbers that Our People lived upon nothing else whilst we were there. It was seldom that We took less than one hundred wild Geese in a day for each ship, and that by only knocking them down with stones". It seems, though, that in ecological terms, they over-exploited their food resources for, in 1770, Captain Anthony Hunt of the sloop *Tamar*, reported how "At our first coming to Port Egmont we found great plenty of wild Geese, which now are so scarce, that we were obliged to go a considerable distance to get any number of them". However, five years later, John Hawkesworth

/wrote

wrote "In every part of Port Egmont geese, ducks, snipes, and other birds are so numerous that our people grow tired of them: it was a common thing for a boat to bring off sixty or seventy fine geese, without expending a single charge of powder and shot, for the men knocked down as many as they pleased with stones: ...".

One of the first descriptions of the geese seems to be that of S.^M. Clayton in 1774⁺, again from around Port Egmont. He observed that "After Dec^r, commences the wild geese are grown fit food, & their young large enough to eat ...", and then that ... "Of geese these are three sorts. Firstly the mountain goose of a small sort about the size of a Muscovy Duck, speckled on the back, & growny* greenish with a glossy* -----* near the neck: under its throat it is brownish: the wings are beautiful with glossy golden feathers; the flesh is excellent & delicate -- secondly, the common wild or painted goose, nearly coloured as the other, but much larger: the ganders are black & white mottled: these are very good food. -- Thirdly, the Sea Goose, feeding always along shore, mottled black & white: the Ganders of these are quite white: they are only eatable when made into soup. -- The two first kinds of geese feed entirely on grass, & in summer on the wild cranberries: they lay in Sep^r. & Oct^r. & about Dec^r., being moulting time, are easily run down & taken". Evidently some geese were domesticated for "--- they soon take to wheat, yet if even they can get loose, & see any of the flocks of wild ones, away they join them directly".

One gentleman, B. Penrose, it seems left Port Egmont in 1772 with some disappointment in the gardens and their produce, for he recorded that "... onions, the savoury ingredient so necessary to render our geese truly delicious, were sadly wanting:...".

Around Port Louis at about the same time geese were also abundant. Dom Pernety, who sailed with de Bougainville, described, in his Historical Journal of 1771, how they "found a prodigious number of bustards (as they called the upland goode) in flocks of twenty or forty, ...". "which did not fly away when we approached them; but walked near us, as if they had been tame". Clearly they were appreciated on the table for he wrote "Red shanks and sea-pies are very good here; but the bustards in particular are exquisite, either boiled, roasted, or fricassed." He went on to comment "It is hardly to be conceived, that the ship's company of our two frigates, consisting of an hundred and fifty men, all in perfect health, and with good stomachs, should have found a quantity of these birds sufficient for their subsistence during a stay of more than two months, within a tract of country not exceeding three leagues". He also observed how the wings of the kelp geese resembled those of the bustard, having a "hard knob like a horn at the articulation of the pinion" and discovered, beneath the large feathers, "a grey down extremely fine and very thick ... at least as beautiful as that of a swan. They would make beautiful muffs". In fact several men ordered many geese and bustards to be skinned to take the down back to France; however, the skins were subsequently lost.

De Bougainville also made some interesting observations on the geese. "Four species of wild-geese made part of our greatest riches. The first only feeds on dry land; and has, improperly, been called bustard. Its high legs serve to elevate it above the tall grass, and its long neck to observe any danger. It walks and flies with great ease; and has not that disagreeable cackling cry, peculiar to the rest of its kind. The plumage of the male is white mixed with black and

* These words proved difficult or impossible /ash-colour to decipher from the original hand.

ash-colour on the wings. The female is yellow; and its wings are adorned with changing colours; it generally lays six eggs. Its flesh is wholesome, nourishing, and palatable; it seldom happened that we had any scarcity of this kind of geese; for besides these which are bred in the isle, they come in great flocks in autumn, with the east wind, probably from some uninhabited country. The sportsmen easily distinguish these newcomers, by the little fear they show of men. The other three species are not so much in request; for they feed on fish and get a trainy taste. Their figure is not so elegant as that of the first species; one of these kinds seldom rises above the water, and is very noisy. The colours of their feathers are chiefly white, black, yellow, and ash-colour. All these species, and likewise the swan, have a soft down under the feathers; which is white or grey, and very thick". Another of de Bougainville's observations is also worthy of note: "two small fruits ... were the only ones ... in autumn. Those which grew upon the bushes were good for nothing, excepting for children, who will eat the worst of fruits, and for wildfowl". These were probably diddle-dee.

In 1766 the Spaniards bought the French out of Port Louis and renamed the port Soledad (and the Falklands "Islas Malvinas"). Then they forcibly ejected the British from Port Egmont and almost caused an Anglo-Spanish war, before restoring the settlement to Britain. A few years later the British left the Islands and in the early 1800's the Spanish did likewise. In 1829 Louis Vernet from Argentina established a new colony at Port Louis but was expelled in 1833 by the British who resumed occupation of the Islands, maintaining their continued claim to sovereignty. These activities probably explain the scarcity of literature about the Islands from the 1770's to the 1830's.

There were numerous communications to Britain from the re-occupied East Falkland in 1833 and onwards, describing the features of the Islands and clearly the presence of the geese was considered favourably. Thus Captain John James Onslow, on the sloop Clio, reported back to Britain that /The East Falkland is capable of being easily brought into cultivation; the soil has produced all sorts of vegetables; the interior abounds in wild cattle, horses, hogs, rabbits, ducks and geese, which when caught young are easily tamed and afford good stock to the settlers;...".

R. Montgomery Martin, in describing the British Colonies in 1835, wrote of the great abundance of birds and their tameness, and particularly of the geese: "... two kinds were distinguished, the lowland or kelp-geese, and the upland geese; the latter were much superior in flavour, the former being of a fishy taste, living chiefly on mussels, shrimps, and kelp. Both were very tame, and the upland geese were easily domesticated. They are finest eating in autumn, being then plump, in consequence at that season of tea-berries, of which they are very fond: the rest of the year they live on the short grass". Governor Moody, the first Governor of the British Colony, in his Despatch to Lord Stanley in 1842, made similar observations on the geese, including though, the brent goose which, with the upland goose, was "excellent eating".

Charles Darwin visited the Falklands on his voyage around the world and, not unexpectedly, made rather more precise observations than previous visitors. He travelled around Berkeley Sound and wrote (1845) "The country is uniformly the same undulating moorland; the surface being covered by light brown withered grass and a few very small shrubs, all springing out of an elastic peaty soil. In the valleys here and there might be seen a small flock of wild geese ...". Later he recorded his observations on the geese: "Two kinds of geese frequent the

Falklands. The upland species (*Anas Magellanica*) is common, in pairs and in small flocks, throughout the island. They do not migrate, but build on the small outlying islets. This is supposed to be from fear of the foxes: and it is perhaps from the same cause that these birds, though very tame by day, are shy and wild in the dusk of the evening. They live entirely on vegetable matter." Many other of the earlier writers mentioned the foxes ("wolf-fox" or "Warrah") and how they apparently preyed quite heavily on the geese and their eggs and goslings.

Evidently geese were still abundant on the West Falkland at this time for W. Parker Snow (1857) landed on Saunders Island and found "two sorts of geese, always in pairs or threes, even when in a flock; ..." and "Thousands would not be too expressive a term to apply to the numbers scattered about before our eyes in all directions". However, once again it seems there was too much of a good thing for "The men ... were already getting tired of them, and had asked for salt meat again."!

Finally, a note by a naturalist, H.N. Moseley, on one of the Challenger expeditions: "Flocks of the geese were to be seen there (Darwin Harbour) feeding on the grass close to the houses, looking just like farmyard geese. The birds take no notice of a gun, but I soon found that they were very quick at seeing a bolas ...". The geese certainly graze around settlement houses today but they have come to fear the gun much more than they did over a century ago.

Geese and Sheep Farming

The early settlers and sealers introduced sheep to the Falklands, keeping them and other stock on the tussac islands, as a source of food. The first attempts at sheep farming, in 1841 with English and Argentinian stock, were doomed to failure through scab disease. Governor Moody was involved in another attempt four years later, which nearly failed again. However, in 1852 the Falkland Islands Company had more success and by 1860 Governor Moore was able to write "sheep bid fair to become one of the staple commodities of the Islands". A decade later Governor D'Arcy attributed the success of wool production to, among other factors, the succulent grasses which kept production costs low. In the mid-1870's the industry was prospering and sheep numbers were increasing rapidly. In 1876, however, scab recurred and spread quickly, through lack of fencing and insufficient man-power for shepherding, but although it was a serious disease, the industry continued to prosper. An unsuccessful attempt had been made previously to tax farmers to fund a scab control campaign. In 1895, though, another attempt succeeded and the Scab Ordinance was passed. It was strictly enforced and soon resulted in the disappearance of the disease. Subsequently the numbers of sheep in the Islands increased and reached a peak of 807,000 by the end of the nineteenth century.

By 1900, however, it seemed that the quality of the pastures was declining and the large numbers of geese, which evidently preferred the best pastures, caused pressure to mount from farmers to reduce their numbers, (from seven to four geese were claimed to eat as much grass as one sheep). The farmers suggested 150,000 geese should be eliminated annually and, to encourage their destruction, that the Scab Fund should pay 15/- for every 100 beaks. Governor Grey Wilson could not sympathise with the farmers' requests. In a letter to a Mr. Lyttleton in 1904 he gave his reasons: "The Falkland Islands goose is excellent eating, being preferred by many to the domestic variety, and it is remarkable in these utilitarian days that no scheme has been devised for preserving the three-quarters to one million pounds of food and marketing the high class down, which this so termed locust-like scourge renders available. In addition to

/the present

the present destruction of birds vast quantities of eggs are broken".

Inevitably the issue raised much controversy and not only within the Falklands for it was featured in English newspapers in mid-1904. Countering the farmers' claims were those who claimed that the geese improved the pastures by their droppings, which contained valuable minerals, that they were an important change of diet for the Camp community and a valuable alternative to mutton for the dogs in winter. While the two latter claims were no doubt fair, it is unlikely the claim over the manurial value of droppings, or for that matter, the relation between goose and sheep feeding requirements, was based on any objective criteria. It should be made clear that not all farmers considered the geese a pest and while some persecuted them and also encouraged boys to kill them (for ten shillings per hundred beaks), others left them alone.

Eventually, however, the Livestock Ordinance of 1901 was amended and an Ordinance for the "diminishing of geese" was passed in 1905 whereby provision was made for beaks to be bought by the Government at 10/- per 100, out of the Scab Fund. Apparently this legislation was passed by a small majority. In order to exert some control on the campaign the maximum number of beaks to be bought annually from both the East and West Falkland was to be determined by the Governor-in-Council. The first limits were set at 25,000 from each of East and West Falkland from the 30th September until the end of that year and the number of beaks bought were 24,530 and 248 respectively (according to official records).

Evidently this rate of reduction was considered inadequate and the 1906 limits were set at 50,000 from each main island, although geese were reported to be diminishing in various parts. In that year 23,260 and 21,700 beaks respectively were sold to the Government. In the following year the Ordinance was extended to the end of 1912, and, to begin with, up to 37,500 were to be bought from each area, but in July, for some reason, it became necessary to raise the limit to 50,000 from East Falkland. In fact the records show 46,840 were bought from there while 28,185 were bought from West Falkland. Thereafter, until 1912, 37,500 beaks were to be bought each year from each of the main islands. The records are scanty and sometimes confusing but whereas in 1908 37,525 from the East and 14,455 from the West were bought, it seems that in 1909 a similar number was bought from the East but nearly 52,000 were bought from the West Falkland.

However, recording the end of the Ordinance in 1912, the then Inspector of Stock reported that, during its existence, about half a million beaks had been bought by the Government. In fact, using the appropriate annual expenditure from the Scab Fund, the number was about 515,600.

Following the cessation of official payments for beaks there were some petitions from the West Falkland to continue them but these were not accepted. Some farmers, however, did continue the practice.

The next official pronouncement on the geese seems to have been in 1924 following the visit to the Falklands of H. Munro, of the Department of Agriculture, New Zealand, to investigate the conditions and practice of the sheep farming industry. One of his conclusions was that a substantial reduction in the numbers of geese would be "highly desirable and would be very beneficial to the farming industry", though he appreciated their food and sporting value. He suggested farmers be obliged

to destroy geese on their land and recommended discarding the previous system of control measures in favour of using the money for experimental work in order to find an effective means of reducing the pest. In fact he recommended grain poisoned with phosphorus. Such a move today would meet considerable opposition on ecological grounds, for the risk of direct and secondary poisoning to other species, and humanitarian grounds, for phosphorus is a very unpleasant poison (it was banned in Britain in 1962 for use against the brown rat mainly for this reason).

Following Munro's recommendations the Government announced it would no longer buy goose beaks (although apparently this had ended officially in 1912; records indicate that payments were made for them subsequently) as there were "other measures to reduce numbers being adopted". There is no evidence, however, that these recommendations were carried out.

The effects of the campaign against the geese do not seem very clear, for in 1920 T. R. St.-Johnstone, describing the goose problem, stated that "today the geese are kept within bounds", while V. F. Boyson, only four years later, wrote that despite the bounty and constant persecution the geese did not appear to be decreasing appreciably except near Stanley. In 1926 A. G. Bennett described the upland goose as "abundant". However, whatever the true situation, St.-Johnstone suggested that, as they "are excellent eating ... so easy to catch, and yet so little desired by the farmers, that a good export trade in canned or frozen geese might be started with benefit to all concerned, to say nothing of the valuable 'down' which could be utilised in the best-class quilts". Some twenty-five years later a similar suggestion was put forward by J. G. Gibbs in his report of the Department of Agriculture, Stanley. He anticipated a market in South America and in Britain, where the geese "well presented and in good condition, would bring ten to twelve shillings a head ...". None of these ideas, it seems, was followed up.

The debate over the values of the geese, apart from the accepted ones of food and sport, and the more intangible aesthetic values, has continued over the years. Bennett suggested that, even if geese ate the grass they spread its seeds and later stated that "Certainly seeds of *Gunnera* (pigvine) and *Empetrum* (diddle-dee) are so carried." This would be considered detrimental, however, by some people. The Inspector of Stock in 1935 voiced an argument propounded by many pro-geese people, that the geese were not detrimental for (when manager on Speedwell Island) he got 8 lb of wool per sheep on an area with "more geese than sheep". Nowadays the association between large numbers of geese on several islands of the Falkland group, the higher density of sheep carried and the higher productivity of wool is used both by those for and against the geese. The former claim this shows both can co-exist and even that the geese help create or maintain the pastures which contribute towards such stocking densities while the latter claim that without the geese the islands' productivity would be significantly higher.

In 1946 J. G. Gibbs, the Agricultural Officer, summarised his view of the goose problem: "There can be no doubt that geese consume a large amount of the young and sweeter grasses, and they are particularly troublesome and destructive on newly sown pastures. On the other hand, their droppings must have a high manurial value. Whether their depredations on native pastures are greater than the benefit they bring is a very debatable point, and one which has not yet been demonstrated satisfactorily". Nearly thirty years later this very debate still continues.

It is probably true to say that it is not so much the number of geese per se that worries their opponents as their

habit of congregating on the best ground. Ecologically this is sound behaviour as a goose's chances of survival are improved if it can obtain sufficient high quality food with the minimum of energy-wasting searching. Many of the preferred areas have derived from the consolidation and manuring associated with frequent sheep movements, preferred sheep areas or sites of former penguin rookeries. Plant species composition and growth in these areas generally changes as a consequence and results in specially nutritious and productive pastures. Naturally enough, as much as the geese favour such areas, so do the sheep and for the farmers these pastures can be particularly important, for example, for lambing, raising stud flocks and during shearing and dipping. Geese are considered by some also to delay or reduce the harvest of hay, cereal and green crops. Hence the conflict.

In 1969 an agricultural team arrived in the Falklands to advise on improving the productivity of the sheep industry. On the goose problem it concluded that "... during winter at least competition for this scarce commodity (grass) is serious ..." and it "... is obviously to the disadvantage of the sheep. It is doubtful if greens do in fact get any rest from grazing at all -- even in camps being rested ...". Further, the team recorded that goose depredations on newly seeded areas (a continuing bone of contention for both sides of the argument, as geese often congregate on these areas) and arable fields were considerable and implied that they were serious because of the heavy investment in "this very necessary work". These conclusions were not based on a careful study of the impact of geese on the industry, however. The team recommended increased efforts to control considerably what it regarded as a major pest to the sheep farming, and that a pest control cum conservation specialist should study and advise on the problem.

Following the team's visit controversy recurred over a suggestion at a Sheep Owners' Association meeting in 1970 that a stupefying bait be used to control goose numbers. The conservationists immediately protested, as they could not accept large scale destruction for what, at most, they considered a local problem and as they objected to chemical control because of the risks of secondary poisoning, destruction of non-target species and other less obvious effects of poisons. Conservation organisations outside the Falklands became involved and all of them stressed the need for careful research into goose ecology and the goose problem before any drastic measures were taken against it.

Finally, in 1972 a follow-up to the team's investigation of the sheep industry endorsed its recommendation but emphasised the need for ecological studies before control measures were effected.

In the summer of 1973, following a recommendation by the Sheep Owners' Association, a post for an ornithologist was advertised in Britain so that an evaluation of the goose problem could be made. The post was filled and a two year study was begun in the autumn of 1974 with the following terms of reference: "To study the habits of the upland and brent geese with special reference to the effect that they have on the sheep farming industry but bearing in mind conservationist factors and the value of the geese as a tourist attraction and source of food and sport."

Conclusions

In reflecting on the history of the goose problem some pertinent observations can be made. The first must be that the geese were naturalised in the Falklands long before sheep were

introduced. They have become a pest (in some people's view) only because they came to interfere with man's main interest in the Islands. Most pest situations in fact are created by man and not by the species concerned.

As the goose has been the only important competitor for the sheep grazing and as there always have been large numbers of geese, particularly on the better grazing, it is surprising that no steps were taken to assess their impact on the productivity of the Falkland Islands' wool industry soon after they were first claimed to be a pest. It was just over seventy years later that such a step was taken. The need to study various aspects of the goose problem was made clear several times during that period but evidently it was not considered important enough.

At various times in the past the value of geese for food and of their products for domestic use has been emphasised. Suggestions for developing a market for them have been made but apparently to little effect. This again is perhaps surprising as any economy dependent on a single commodity is liable to ups and downs and additional industries, albeit small ones, can help buffer the effects of a slump in the major one. The wool market has experienced a number of slumps in the past but no assessment of the potential of an exploitation of the geese of the Islands has been made.

A wide variety of ideas about the geese and their interaction with the sheep has arisen, some of them with little foundation. The obvious association between geese, sheep and the best pastures leads inevitably to many interpretations but an understanding of the true relationships can be obtained only by an objective study of the many factors involved. It then becomes possible to evaluate the impact of geese on the sheep farming industry and, if action is needed, to make the right decisions.

Summary

It appears that geese of the genus *Chloephaga* inhabited the Falkland Islands before man discovered and colonised them. Throughout the history of his colonisation the geese have been abundant and, the upland and ruddy-headed species, have provided welcome sources of food, sport and feathers for domestic use. However, as sheep farming became the mainstay of the Islands economy the feeding habits of the geese became increasingly unacceptable to many farmers who wanted the best pastures for their sheep.

At the beginning of this century the first major campaign against the geese began with an Ordinance allowing the Government to buy beaks from farmers in order to encourage the destruction of the birds. In seven years over half a million beaks were so bought.

Over the last seventy years there has been much debate over the goose problem with the anti-goose faction claiming the birds constituted a serious pest and demanding their reduction and the pro-goose faction objecting to unselective reductions in numbers over the Islands, at least until the ecology of the species is understood, any benefits of the birds evaluated and the likely effects of their reduction better known.

During the past fifty years agriculturists from inside and outside the Islands, in advising the sheep industry on means of increasing its productivity, have concluded that the geese are a detrimental factor to the industry and that they should be reduced. The more recent ones have recommended ecological studies of the birds before control measures are organised against them. A scientific study of the goose problem is now in progress.

Caracas Island
Agricultural Department,
Stanley, Falkland Islands,



..... 6th Mar 1975..

Dear Sir,

In my recent interim report I mentioned my work at Fox Bay East with the available crops and the probable need to visit Port Howard to investigate goose damage on the oat crop. The oats at both farms are likely to be harvested later this month and it is important for me to be present during the harvest. As harvesting depends very much on the weather there may be very little warning as to when it will start. I would be grateful, therefore, for approval to make these visits as and when necessary. If you prefer I can let you know of each visit as it comes up but it may be at very short notice.

I hope to be able to combine the visit to Fox Bay with the previously agreed visit to Stanley, if possible.

Yours sincerely

John Hanadine

PS (17th March) Re my message this morning - the Port Howard harvest is already underway.

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

RECEIVED

20

D669953/54 587 250 pds 9/70 C.P. Ltd. Gp. 3631

Number	Office of Origin	Words	Handed in at	Date
47	CARCASS IS.	18	0925	7 3 75

To PHONE
ETAT/CHIEF SECRETARY STANLEY

GRATEFUL FOR APPROVAL VISIT PORT HOWARD MONDAY 10TH. MARCH FOR OATS HARVEST
LETTER TODAY

HARRADINE

OK
I have approved
5/13



Time

20th March

75

B J Baxter Esq

WIAD

Foreign and Commonwealth Office
London SW1

Dear Sir,

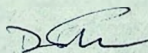
Upland Goose Study

Please refer to your file HWF/7/4 wherein you will see correspondence about the provision of equipment and funds for the study of the Upland Goose currently being undertaken by John Harradine.

Harradine is well into his research on geese and is investigating to what extent geese improve vegetation growth by their grazing and faecal production as explained in an copy of an interim report on the progress of the study.

The cost of chemical analysis of goose droppings and pasture samples is estimated to be £4 per sample and Harradine has estimated that \$200 will be necessary to carry this project out. I should be grateful if you could arrange for £200 to be made available from Technical Assistance Funds, for Harradine's project.

Yours faithfully,

(D R Morrison)
for CHIEF SECRETARY.

CPEJ

20th March

75

J. Harrodine Esq
Garcass Island

Dear Sir,

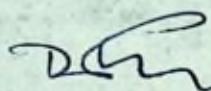
Please refer to your letter of 18th February 1975.

While it is true that wirement is acceptable nowadays I am afraid that it cannot be applied to Technical Assistance Funds when we are responsible for the internal transportation of Technical officers. If you require additional funds then an Application to Incur Additional Expenditure will have to be submitted to the Standing Finance Committee.

2. All approaches to the Foreign and Commonwealth Office for funds must be submitted by the Chief Secretary and a request for funds has been made accordingly.

3. A reply regarding your queries about the distribution of your article on the Upland Goose will be forwarded later.

Yours faithfully,

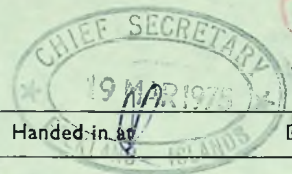


(D. F. Morrison)
for CHIEF SECRETARY

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

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P25 6/32/401381 500 11/66 R. Ward 843

Number	Office of Origin	Words	Handed in at	Date
138	CARCASS IS.	13	1105	17 3 75

To

ETAT CHIEF SECRETARY

STANLEY

GRATEFUL APPROVAL VISIT FOX BAY WEST WEDNESDAY 19TH. FOR OAT HARVEST

HARRADINE

Actioned
R

Time

file

(23)

CS

Phoned telegram from Harradine

Grateful approval visit Fox Bay West 19th for Oat harvest
Harradine.

Mrs Rowlands says he has also asked her to book provisionally for himself (official) and his wife (private) from Carcase to Fox Bay; Fox Bay to Stanley, and Stanley to ^{Carcase} ~~Fox Bay~~, to be confirmed when you have approved request on telegram.

Also Mr Monk had agreed to fly in on Tuesday afternoon for ExCo on Wednesday, as it was not convenient for Air Service to carry him Wednesday morning. Now Mrs Monk has asked Mrs Rowlands to Give a message to you to please arrange Mr Monk's flight Wednesday morning as this is an official flight.

JB

Om.

I spoke C.S. re this.

Para II - Rene is speaking to JB - the meeting is Thursday & flights will probably be re-arranged.

Para I - flights arranged by C.S. if time is cash available.

§ 18.3.75.

Reply sent: Flight Fox Bay 19th Approved.

DISCUSSION - C.S./HARRADINE

Harradine raised the following matters:-

- i He wants to extend contract from 2 to 3 years.
- ii He will probably change his base later on. *He cannot yet give any indication when.*
- iii He wants more money for air travelling.
- iv He is still awaiting some supplies ordered a year ago.

2. He was instructed:-

- i to let me have the bare bones of a case for extending his contract;
- ii to estimate for 1975/76 as soon as possible in letter form;
- iii to think now about where and when he should change his base. He should bear in mind that it will be easier if he was based at a settlement where he could enlist the co-operation of the manager and workers, and where, too, he would be on a regular FIGAS route.

He was also advised that he should select this as soon as possible so that he could start his projects now so that they will be in full flow when he moves permanently. He could also think about a site more accessible to the services of Government notably repair of his vehicle.

- iv I told him we would look into the outstanding items that had not been ordered.

v. Complete any useful notes for the G.T.O.

*I
DCS
A. deans.*

11/4

Discussed 21/4

Bu 11/4/75

(384)

The Case for an Extension of the Two-year Contract for the Upland
and Brent Goose Study

1. Essentially, the experimental work so far has had to be exploratory - developing methods of assessing the impact of geese on the sheep industry. Some methods seem promising while others require modification.
2. The nature of the environment for scientific research inevitably prolongs a study of this type, compared with an equivalent study in, for example, Britain.
3. Marking geese, for movement studies, has not yet begun on account of the difficulties in obtaining suitable rings.
4. Some equipment ordered a year ago has arrived only recently; another item^{*} of considerable importance to the feeding studies has not yet arrived.
5. Unfortunate circumstances, including the weather, rendered experiments on arable crops all but useless for this year. A repeat of one of the experiments in 1976 would extend to June 1976.
6. It is unlikely enough scientifically valid data, on which important decisions might be based, can be collected in the time remaining of the present contract.
7. Farmers will be sceptical of only one year's results if these contradict their preconceived ideas about the geese, and particularly if the year's weather has been atypical - 1974/75's weather has been very atypical in some respects. Scientifically this is undesirable.

I consider, therefore, that a minimum of one year onto the present contract would be an essential prerequisite for a better assessment of the goose/sheep farming interaction. This, further, would allow liaison with the Grassland Trials Unit which would be very beneficial.

I consider a period of leave after the present contract also to be beneficial to the study, apart from personal considerations, so that I may discuss aspects of the work with other scientists and make use of their library facilities.

* Apparently this has just arrived in Stanley

John Haradine
12th April 1975

Carcass Island

14th April 1975

(37)

Dear Mr Monk,

I enclose my Estimates for 1975/76. I enclose also my reasons for requiring an extension to the goose study contract.

✓ I shall need to visit Teal Inlet shortly to reestablish the experiment damaged by the co. I would be grateful for approval to do so.

Agreed
27/4

Other visits envisaged in the near future are to Fox Bay to coincide with the rape crop harvest and to Stanley for Farmers' week. The approximate respective dates are late May/early June and July. ✓

Recently I have been able to obtain copies of some important research papers from the Grassland Research Institute. I assumed the F.C.O. would cover the expenses. I enclose the invoice and would be grateful if the necessary arrangements can be made to pay it. In my 1975/76 estimates I have allowed for such expenditure.

I heard with interest that Mr Kern hails from the East of Scotland

College of Agriculture. This is just across the campus from my former department in Edinburgh and is where the cropping and pasture analyses will be done. I look forward to meeting him - hopefully this might be in July.

With best wishes

John Hamadine

II. To be financed by Technical Assistance funds

£

1) Items obtainable locally in Port Stanley

a. Ammunition	10.50
b. Batteries	2.00
c. Fencing: wire-mesh	140.00
wire	50.00
staples	0.50
	<u>Total</u> 203.00

11) Items to be obtained from Britain

a. Polythene bags	15.00
b. Scissors	2.00
c. Chemical analysis of droppings and pasture	100.00
	<u>Total</u> 117.00

£200 asked for in (26)

38

FALKLAND ISLANDS UPLAND AND BRENT GOOSE STUDY

Estimated costs of requirements for the financial year 1975/76.

I. To be supplied by the Falkland Islands Government

£

1) Transport

a. Diesel fuel	80.00
b. Lubricating oil	4.00
c. Maintenance and spares	120.00
d. Shipment of land rover	90.00
e. Beaver flights	250.00
f. Shipment of personal effects/equipment	100.00
g. Equipment freight charges	50.00

11) Study Base

a. Accommodation rent	250.00
b. Power for deep-freeze and laboratory	36.50
c. R/T messages	12.00
d. Stamps	2.00

111) Assistance

a. Part-time assistant (Stanley)	40.00
----------------------------------	-------

1V) Miscellaneous

100.00

Total 1134.50

Notes

Re 111) a. -- This is the only feasible alternative as a) the K.E.M.H. laboratory technician cannot undertake the work b) the hot-air oven must be used and c) to save much valuable time (for me) and money.

1V) -- This is to cover unpredictable expenses e.g. copies of scientific literature from various research institutions, and special generator running to maintain temperature of deep-freeze.

Carcass Island
Agricultural Department,
Stanley, Falkland Islands,

48

14th May 1975



10/1 day at (51)
Dear Mr Monk,

Thank you for your recent message.

Agreed with CS

Farm visits - The work established at Ray Cave is not progressing very well so I would be grateful for approval to go there in the near future to establish further experiments.

Agreed with CS
I think it important to be in Stanley for the SOA meetings as various matters should be discussed with the farmers. I would be glad for approval to go to Stanley for this purpose.

Estimates, Chemical Analysis - Recently received research reports suggest that a more complex analysis might be necessary but I do not have the necessary details yet. I thought it wise, therefore, to allow for more costly analysis, so the total request is for £300.

See (52)
Equipment - I thought of the scissors and bags at the last

minute but as I do not have the appropriate catalogues I could not give the specifications. I am waiting for these and will forward them when I receive them. Thank you for offering office scissors but I need the dissecting type.

I would be grateful if you could forward to me Mr/Dr. Kerr's (GTU) address as I would like to write to him.

Kind regards to your wife and I hope her health is improving.

With best wishes

John Haradine

File FCC/51/1 51
GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

SENT

Number	Office of Origin	Words	Handed in at	Date
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21.5.75

To

Harradine, Carcass Island.

reply to (B)

visit Roy Cove approved. Visit Stanley SOA meeting approved provided duration visit kept minimum consistent with needs your project. Kerr's address *unavailable he is based at Rincardine*

Phoned 1600 hrs.



Time

FCO/5/11

(53)

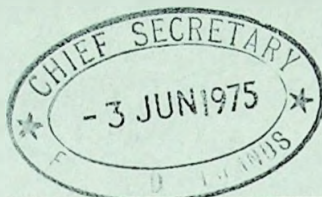


MINISTRY OF OVERSEAS DEVELOPMENT

Eland House Stag Place London SW1E 5DH

Telephone 01-828 4366

D R Morrison Esq
The Secretariat
Stanley
FALKLAND ISLANDS



Your reference

Our reference NRA 223/56/01

Date 22 May 1975

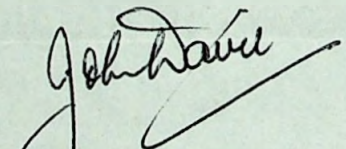
Dear Mr Morrison

Good | I have sent a copy of John Harradine's Report to Dr J D Lockie of the Department of Forestry and Natural Resources, University of Edinburgh. Dr Lockie was John Harradine's supervisor of postgraduate studies at Edinburgh and we feel that it might be useful if he could pay a short visit to the Falklands to consult Harradine about the progress of the project. Dr Lockie has expressed interest and has suggested your spring season would be a suitable time for a visit.

If this proposal meets with the approval of your Government we can take steps to make funds available for this visit in due course. Meanwhile it would be useful if you could let me know, after consultation with Harradine, when a visit would be most suitable from the ecological point of view.

With kindest regards,

Yours sincerely


J Davie
ANIMAL HEALTH ADVISER

CC Miss Hunt - FCO

FCO/5/11

22nd May,

75.

Miss M Hunt
WIAD
Foreign and Commonwealth Office
London SW1

Dear

Upland Goose Study

Please refer to my letter FCO/5/11 of 20th March addressed to B J Baxter seeking funds for chemical analyses for Harradine up to £200. He has now advised that with rising costs the total amount is likely to be £300 so would you please, if it is not too late, increase the amount requested to £300?

Yours faithfully,

DR
(D R Morrison)
for CHIEF SECRETARY

SC

54

Harradine Carcass Island

Ministry Overseas Development suggests Dr Lockie visits Falklands consult you regarding project. Dr Lockie interested and suggests spring visit. When would visit be most suitable from ecological viewpoint, or is spring visit acceptable.

ChiefSec.

Issue

55

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

SENT

Number

Office of Origin

Words

Handed in at

Date

4.6.75

To

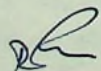
HARRADENE CARCASS ISLAND

N

MINISTRY OVERSEAS DEVELOPMENT SUGGESTS DR. LOOKIE VISITS
FALKLANDS CONSULT YOU REGARDING PROJECT. DR. LOOKIE INTERESTED
AND SUGGESTS SPRING VISIT. WHEN WOULD VISIT BE MOST SUITABLE
FROM ECOLOGICAL ^{VIEW} POINT OR IS SPRING VISIT ACCEPTABLE.

CHIEFS RC

Time



GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

RECEIVED

(57)

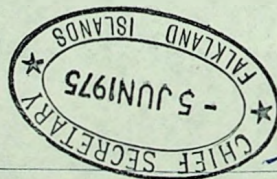
D669953 12387 250 pds 8/70 C.P. Ltd. Gp. 3631

Number	Office of Origin	Words	Handed in at	Date
71	CARCASS IS.	30	1405	5 6 75

To

ETAT CHIEF SECRETARY STANLEY

YOUR MESSAGE CANNOT ANSWER WITHOUT KNOWING WHAT DR. LOCKIE WANTS TO DO DURATION ~~EXCEEDED~~
BACKGROUND OF VISIT ETC. GRATEFUL MORE DETAILS BY LETTER AT EARLIEST CONVENIENCE



HARRADINE

Time

Des
We accept Lockie.
16/6

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

SENT

Number	Office of Origin	Words	Handed In at	Date
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Date

To

ITF MINISTRANT LONDON

reply at (61)

MODEM NO 33

FOR ANIMAL HEALTH ADVISER YOURIST MRA 223/56/01 22 MAY.
VISIT DR LOCKIE WELCOME. FUNDS SHOULD INCLUDE PROVISION
HOTEL ACCOMMODATION WHILE IN STANLEY AT £7.50 A DAY.
INTERNAL FLYING DEPENDS ON AMOUNT NECESSARY BUT £60 SHOULD
SUFFICE PARA.
WILL ADVISE LATER ■ MOST SUITABLE DATE FOR VISIT.

GOVERNOR

Time

FCO/S 11

File 60

6th June,

75.

J. Harradine Esq.,
Carcass Island.

Dear Sir,

The attached is forwarded for your information. Please
initial and return for our records.

Yours faithfully,



(D R Morrison)
for CHIEF SECRETARY

enc.

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

SENT

Number	Office of Origin	Words	Handed In at	Date
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9.6.75

To

HARRADINE GARGASS ISLAND

DR LOOKIES VISIT ACCEPTED. DETAILS NOT KNOWN OTHER
THAN SHORT VISIT. PLEASE ADVISE MOST SUITABLE DATES
FOR VISIT.

CHIBFSEC

Time

FCO/5/11



61

MTMTVVVV
ZCZC ATS322 MOZ924X LHC272 XLH192 TX263907
FKLX HZ GBLH 040
LONDONLM TLX 40/39 13 1340

LTF
GOVERNOR
FALKLAND ISLANDS

58

MODEV33 FOR MORRISON FROM DAVIE UNDERSTAND GOOSE BREEDING SEASON
IN ~~OCTOBER~~ SUITABLE TIME VISIT BY ~~LOCKIE~~ CAN YOU CONFIRM APPROVAL
OF VISIT BY GOVERNMENT AND DESPATCH OF A1 TO ENABLE ARRANGEMENTS
TO BE MADE
MINISTRANT LDN

COL LTF MODEV33 A1

NNNN

Fco/S/11



Carcass Island
Agricultural Department,
Stanley, Falkland Islands,

70

16th June 1975

Dear John,

I have to send the enclosed letter to several farms. Could you arrange to have copies made for me and to have one copy addressed to the manager of each of the farms listed below, and sent at the first opportunity from Stanley?

Many thanks.

John

- | | | | |
|---|-----------------------|--------------|------------------------|
| 1 | Chartres ✓ | 7 | Teal Island |
| 2 | Darwin / Goosegreen ✓ | 8 | Salvador ✓ |
| 3 | Hill Cove ✓ | 9 | Rincon Grande ✓ |
| 4 | North Arm ✓ | 10 | Port San Carlos ✓ |
| 5 | Port Stephens ✓ | 11 | San Carlos ✓ |
| 6 | Ray Cove ✓ | 12 | Fox Bay west ✓ |

P.S. Would you address a second copy to Robin Pitlorge, Chairman of S.O.A.
"For Information", please?



69
CARCASS ISLAND

16th June 1975
ref at (70)

Dear Sir,

I apologise for the impersonal nature of this letter but I hope you will appreciate that writing the same letter to a number of farms is less efficient than doing it this way.

As you may know it is probable that Tina and I will be leaving here, after August as it stands at present, to establish another base on the mainland to continue the goose-study.

I wonder, therefore, if you would let me know if you would be willing and able to accommodate us on your farm and to provide basic supplies?

If you think in terms of an outside-house then, to be suitable, it must have a power supply.

If you think an arrangement is possible then an idea of your terms would be most helpful.

I would be grateful also if you would describe what, on the farm, you feel would be worth including in the study (even though it may have been done before). I am thinking of reseeded ground, particularly where new or different grass species are being tried, experimental crops or the standard crops (oats, kale/rape etc.), particularly vulnerable or valuable areas and so on, which attract heavy goose pressure and which could provide useful information.

Thank you for your help.

Yours sincerely

John Harradine.

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

SENT

63

Number

Office of Origin

Words

Handed in at

Date

20.6.75

To

HARRADING CARCASS

NO DETAILS LOOKING VISIT. DOB FEEL USEFUL CONSULT YOU ABOUT
PROGRESS OF PROJECT. SUGGESTION IS THAT VISIT IS MADE IN GOOSE
BREEDING SEASON. PLEASE ADVISE SUITABLE DATES WITHIN WHICH VISIT
SHOULD FALL.

CHIEFSEC

Time

EC015/11

644



20th. June 1975.

J. Harradine Esq.,
Carcass Island.

Dear Sir,

Thank you for your circular dated 16th. June.

To answer your queries:

1. We do have accommodation available at Goose Green in what is called the Cadets House which comprises one large bedroom, small bedroom, bathroom, kitchen/living room and scullery. The usual outbuildings and modern conveniences including electric light are available.
2. We would be willing for you to take up residence in this house at any time. It is however unfurnished.
I would be grateful if you do decide to accept this offer if you would advise me for how long you would require it.
3. The house would be rent free, peat and meat would be supplied. Basic supplies are available at the farm store.
4. There are as you know several areas of re-seeded ground within easy reach of Goose Green, some of these have had various applications of fertiliser. We have also recently completed re-seeding further areas in excess of six hundred acres, on both diddle-dee and white grass areas.
We intend to sow further areas in the early summer and also attempt to grow ten acres of kale - if the geese will let us.
An area of cocksfoot is also to be sown.

Yours faithfully,

[Signature]

General Manager.

c.c. Manager, Goose Green.
Chief Secretary.



Carcass Island
Agricultural Department,
Stanley, Falkland Islands,

72

23.2 June 1975

Dear Mr Monk,

With reference to your recent telegram over Dr. Lockie's visit - any time in October or November would be suitable given, now, that it should coincide with the breeding season.

I realise this does not constitute a quick reply as requested but from the start of this matter I thought it better kept from the general public. When we met in Stanley I agreed, on your request, to avoid if possible, communicating by R/T so as to prevent the communications being made public. Since then, on nearly every occasion, I have written when I have had official business. I note, however, that most official communications to me have been over the R/T, and mostly on a just after 'plane or mail days.

There are a lot of people who regard the goose study with disfavor, many are sceptical, and disagree with the amount of money and time

being spent on it. I cannot see that the knowledge that another expert, is being sent, at considerable expense, to check on me and the study (for that surely is how many will interpret the recent telegrams) will do anything to improve local attitudes towards the geese study and my position.

In order to avoid this I have tried to communicate over this matter by letter.

Yours sincerely

John Hanadine

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

SENT

65

Number	Office of Origin	Words	Handed in at	Date
				26.6.75
To	HARRADINE CARCASS			H
GRATEFUL REPLY FRIDAY BY TELEGRAM 26th JUNE TO ENABLE MOD MAKE ARRANGEMENTS.				
CHISPOL				
Time				

26.6.75

To

HARRADINE CARCASS

H

GRATEFUL REPLY FRIDAY BY TELEGRAM 26th JUNE TO ENABLE MOD
MAKE ARRANGEMENTS.

CHISPOL

Time

Feo/8/11

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

RECEIVED

75

~~D669956/54.987 250 pds 8/70 C.P. Ltd. Gp. 3631~~

Number	Office of Origin	Words	Handed in at	Date
270	CARCASS IS.	12	1410	26 6 75

To

ETAT CHIEF SECRETARY

STANLEY

see
72

YOUR TELEGRAM HAVE WRITTEN FOR FRIDAY'S PLANE

HARRADINE

Time

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

SENT

Number	Office of Origin	Words	Handed In at	Date
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2.7.75

To

LTF MINISTRE LONDON

MODEV 39

YOUR MODEV 33 FOR DAVIE FROM MORRISON. VISIT APPROVED.

HARRADINE SUGGESTS ANYTIME OCTOBER OR NOVEMBER ^{which} ~~TE~~ COINCIDES

BREEDING SEASON. FORMAL APPLICATION FOR VISIT BEING FORWARDED

FRENCH

Time

Application for British Technical Assistance

Provision of an Expert

Government of Falkland Islands

1. Type of Appointment Visit of supervisory expert for study of the Upland Goose
2. Number required One
3. Authority to whom expert responsible Falkland Islands Government
4. Date required October or November 1975
5. Duration of appointment Short Duration

6(a). Background to and description of project for which expert required, (Please indicate as concisely as possible the general nature of the project, development scheme or training programme etc. stating whether this comes within the Government's development programme. It is important to know whether the application is related to a projected or newly started enterprise, the extension, re-organisation or maintenance of an existing one, and whether it is a one-time or continuing operation. In the case of a feasibility survey the sources of capital to finance the implementation of any recommended scheme should be stated).

Visit is required to consult in the field regarding the study of the Upland Goose

(b). Details of any previous application to fill vacancy through United Nations or other source. Nil

(c). (i) Is the vacancy on the regular establishment of a Government Department or other institution? Inapplicable

(ii) If so, please state the local salary mean.

(d). Additional Information for Industrial or Engineering Projects

Please indicate the output or estimated output and number of workers involved in the industrial or engineering concern. If a construction contract is involved particulars should be given, including whether the contract provides for interim operations and/or the training of personnel by the contractors; it should be stated if a contract has been signed and the completion date indicated.

- N.B. 1. Two copies of this form should be completed for each application;
2. This form should not be used in applying for:
- (a) Assistance under the Colombo Plan
 - (b) for appointments eligible for O.S.A.S. terms.
-

6.(e) Additional Information for Education and Training Projects:

Please indicate scope of project, status of educational institution involved, and whether it is maintained from public funds or grant-aided, number and nationalities of students involved and their age groups and academic levels. Copies of syllabuses (existing or proposed) should be provided. Information should also be given regarding equipment available (e.g. laboratory facilities etc.)

(f) Additional Information for Agricultural Projects:

Please state what staff and facilities exist and what capital is available for implementing the project, with a brief summary of the data already available.

(g) Additional Information for Research Projects:

Please state what equipment (e.g. laboratory facilities) and data can be made available.

Inapplicable

(h) Any other information which may help in selection of an expert.

7.(a) Essential qualifications and experience required.

Dr Lockie of Dept of Forestry and Natural Resources Edinburgh, University, is in mind for this.

(b) Any additional desirable qualifications.

(c) If knowledge of a particular language is essential or desirable, please give details.

8. Age Limits

Inapplicable

9. Full details of the duties of the expert, e.g. is he to act as a consultant or to be associated with the management of the project?

Person appointed will act as consultant.

10. Associated staff (in appropriate cases please say what provision has been made for supporting staff). Please indicate the level of staff with whom the expert will be working.

Nil

11. In the case of continuous projects please give name and particulars of understudy or counterpart who will work with expert and say what arrangements will be made to train a local successor.

A project for the study of the Upland Geese is already being undertaken and this visit is in addition to the basic scheme.

TERMS AND CONDITIONS OF APPOINTMENT

12. Actual place of employment (and nearest town if appropriate).

In the country districts and in Stanley, Falkland Islands

13.(a) Quarters

Is suitable living accommodation provided?

While in Stanley the officer will be accommodated in a hotel.

(b) If so provided, is accommodation furnished or unfurnished?

(c) Is accommodation suitable for
(i) a married man without a family?
(ii) a married man with a family?

(d) Where quarters are not provided please give information about the availability of housing or hotel accommodation.

Hotel accommodation available

- (e) On furniture and household requisites be bought locally, and would it be cheaper to buy locally rather than to buy and bring from Britain? Inapplicable
-
14. Allowances *Usual Technical Assistance Rules will apply regarding Allowances*
Please state where appropriate
- (a) Daily allowance for food;
-
- (b) Daily allowance for accommodation; Inapplicable
-
- (c) Daily and nightly subsistence allowance rates when on duty away from headquarters; Inapplicable
-
- (d) Internal travel allowance rates (or if a car is provided for official journeys?) Inapplicable
-
- (e) Any other allowances Inapplicable
-
15. Will medical and dental treatment and hospital arrangements be provided free for the appointee and his accompanying dependants? If not, please state what assistance, if any, is offered by the Government in this respect. Free medical and dental treatment
-
16. Will exemption be granted from payment of customs duties, income and other taxes? Inapplicable
-
17. What arrangements are there for local leave? Inapplicable
-

Signed *R. G. McInnes*
..... *Deputy Chief Secretary*
..... *Jackland Islands*

On behalf of the Government of

Date *2nd July 1975*

EXTRACT FROM MINUTES OF EXECUTIVE COUNCIL MEETING NO. 9/75
HELD ON FRIDAY, 11TH JULY 1975.

ECO/5/1

20.4 Visit of Upland Goose Expert (Memo INF/9/75)

Council welcomed the visit of Dr. Lockie to assist Mr. Harradine and felt that as a result of the visit the need for overseas leave to Britain for Mr. Harradine fell away.

Rowing
CLERK OF COUNCIL

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

SENT

83

Number	Office of Origin	Words	Handed in at	Date
				14.7.75
To				
	HARRADINE CARCASS			HO A/C

REF YOUR VISIT STANLEY.

GOA HAS CONTACTED ME AND SAY YOUR VISIT NOT NECESSARY FROM THEIR
POINT OF VIEW. PLEASE AMPLIFY YOUR REASONS FOR VISIT STANLEY.

CHIEFSEC

Time

R1725X9/72 50m

RECEIVED

Number

Office of Origin

Words

Handed in at

Date _____

154

CARCASS IS.

97

1505

15 7 75

To

STAT CHIEF SECRETARY

STANLEY



YOUR TELEGRAM RECEIVED TODAY STUDY WAS REQUESTED BY FARMERS STOP INTENDED TO DESCRIBE ITS PROGRESS AND EMPHASIZE HOW THIS DEPENDS CONSIDERABLY ON THEM STOP ALSO TO DISCUSS NEXT STAGE INCLUDING MOVE FROM CARCASS TO MAINLAND FARM AND FUTURE VISITS TO OTHER FARMS STOP PERSONEL CONTACT WITH FARMERS GATHERED TO REVIEW ASPECTS OF FARMING SEEMED DESIRABLE STOP WOULD ALSO HAVE USED OVEN AND COLLECTED INFORMATION AND EQUIPMENT LETTERS HAVE FAILED TO OBTAIN STOP ~~XXXXXXXXXXXXXXX~~ AS VISIT DEEMED UNNECESSARY BY SOA HOPE FOR INTEREST IN STUDY APARENTLY LACKING SO VISIT SEEMS UNLIKELY TO BENEFIT STUDY

HARRADINE

Time

CS

(89)

Carcass Island,

18th July, 1975

Dear Sir,

I am circulating to all farms the enclosed details of the goose study, for information and perhaps a better idea of its nature, progress and some of the difficulties encountered.

For the farmers attending the S.O.A. meetings I was able to explain or enlarge on some of the aspects listed. For the farmers unable to attend I am enclosing this covering letter. I am sorry if you find some of the aspects too brief; on the other hand I apologise if there is too much detail.

Progress has not been as good as I had expected. Many factors have contributed to this. I regret to record that cooperation has been considerably wanting from various quarters and much valuable time has been lost and additional difficulties caused.

Equipment has caused many headaches - the microscope for gut analyses arrived after 11 months; exactly a year for the correct microscope cover slips for the food preference studies to arrive; growth studies of young geese were prevented by lack of the necessary balance; suitable rings could not be obtained in time to mark goslings or shedders; I ask for equipment (and information) locally but am not answered or only very much later; the balances I have rarely give the same reading twice; the Rayburn oven has to dry all samples, reducing efficiency and accuracy and is not always available of course. And so on.

I accept some of these difficulties but emphasise how they affect progress.

The nature of the study has required much experimentation and development of methods, as required in many scientific investigations, and inevitably not all approaches prove suitable or precise enough. All this takes time. The value of Carcass to this initial part of the work has been considerable.

The year's weather has been unfortunate, altering behaviour and movement of geese and destroying the experiment on the rape crop. Animals and weeds also have taken their toll of experiments.

I am working in considerable scientific isolation with very limited access to the scientific literature and statistical advice which normally form an integral part of scientific research. Writing away on statistical aspects takes weeks; the receipt of new research reports sometimes suggest modifications to the work.

I do not wish to labour these points or to make excuses but simply to help you appreciate some of the conditions in which I have to work.

As a result of the progress this far I considered an extension to the present contract highly desirable to ensure the value of the study. I asked for at least one year but am still waiting to hear whether my submission has been accepted.

If an extension is granted I propose spending that time on a mainland farm given a suitable base can be found and a farmer willing and able to accommodate the study and ourselves. I will continue and extend the work I have been doing here on Carcass with the aim of making a more comprehensive investigation of the goose problem. If not granted then an early move to the mainland is important.

With or without an extension I think the presence and work of the G.T.U. will be of great benefit to the study.

However/

However, I must point out that the study was requested by the farmers and its success depends considerably on them, regardless of personal views. I do not expect any farm to stop work just so I can visit to do some work, of course, but I have had to wait weeks, sometimes months, before being able to visit. Consequently some experiments have had to be abandoned and others have been spoiled, sometimes for the year. The more delays there are the more time and therefore money is wasted and the value of the study reduced.

I hope that this information will be of some interest or help to you and I would welcome any comments, suggestions or additions you would like to make to this letter or the Analysis and progress report.

I look forward to hearing from you or to meeting you again in the future.

Yours sincerely,

J. Harradine

A Study of "the habits of the Upland and Brent Geese with special reference to the effect they have on the sheep farming industry but bearing in mind conservationist factors and the value of the geese as a tourist attraction and source of food and sport."

An Analysis of the More Important Aspects

1. Interaction with Sheep

- | | |
|------------------------------|---|
| 1.1. Feeding Habits | 1.1.1 Competition for foods and food selection |
| | 1.1.2 Amount of food eaten |
| | 1.1.3 Habitat preference |
| 1.2. Droppings | 1.2.1 Fouling of or damage to pasture or water supply |
| | 1.2.2 Food value to sheep |
| 1.3. Transmission of disease | |
| 1.4. Buffer in predation | |

2. Interaction with Vegetation

- | | |
|---------------------|--|
| 2.1. Feeding Habits | 2.1.1 Quantitative and qualitative effect of grazing on vegetation |
| | 2.1.2 Alteration of abundance of desirable sheep food plants |
| | 2.1.3 Physical damage to pasture |
| | 2.1.4 Effect of trampling |
| 2.2. Droppings | 2.2.1 Manurial value |
| | 2.2.1.1 Nutrient contribution to vegetation |
| | 2.2.1.2 Improvement to soil |
| | 2.2.2 Redistribution of desirable and undesirable food species |

3. Interaction with Management

- | | |
|---------------------------------------|----------------------------|
| 3.1. Influence on Costs of Production | 3.1.1 Control measures |
| | 3.1.2 Allowance for habits |
| 3.2. Pressure on Crops | 3.2.1 Cereals |
| | 3.2.2 Brassicas |
| | 3.2.3 Others |
| 3.3. Influence on Management Practice | |

4. Interaction with Man

- | | |
|------------|-----------------|
| 4.1. Value | 4.1.1 Food |
| | 4.1.1.1 Human |
| | 4.1.1.2 Animal |
| | 4.1.2 Financial |
| | 4.1.2.1 Wings |
| | 4.1.2.2 Bounty |
| | 4.1.2.3 Tourism |

- 4.1.3 Social
 - 4.1.3.1 Sport
 - 4.1.3.2 Egging
 - 4.1.4 Aesthetic
 - 4.1.5 Ecological
 - 4.1.5.1 Preservation of species
 - 4.2. Damage
 - 4.2.1 Actual (e.g. powerlines)
 - 4.2.2 Potential (e.g. aircraft)
- 5. Breeding Biology
- 6. Movements
- 7. Numbers
- 8. Disease
- 9. Body Parameters
- 10. General Biology and Behaviour
- 11. Miscellaneous

A. ASPECTS STUDIES OR BEING STUDIES (bold type in Analysis) WITH
BRIEF DESCRIPTION OF METHODS

1.1. Feeding Habits

1.1.1 Competition for foods and food selection

Compilation of list of foods
Observations on feeding habits and seasonal variations
Regular collection of dropping samples for faecal analysis of
food preferences

1.1.2 Amount of food eaten

Measurement attempted with captive goose
Establishment of exclosures and cages on pastures (incl. settlement
paddocks, mature Yorkshire fog, newly sown fog) to compare
grazed with ungrazed vegetation.
Weight of gut contents, passage time of food, analysis of contents
and diurnal and seasonal variations in same.
Dropping weights and rate of production

1.1.3 Habitat preference

Dropping counts as index of preference

1.3. Transmission of Disease

Collection and identification of pathogens

2.1. Feeding Habits

2.1.1 Quantitative and qualitative effect of grazing on vegetation

Use of cages to protect pasture from grazing at different seasons
to relate amount of food subsequently available for sheep to
its nutritive value

2.1.2 Alteration of abundance of desirable sheep food plants

Observation of feeding habits

2.1.3 Physical damage to pasture

Observation of feeding habits

2.2. Droppings

2.2.1 Manurial Value

2.2.1.1 Nutrient contribution to vegetation

Rates of dropping production from wild and captive birds, and
proportion of types
Dropping collections for individual weights and total production
and density per unit time
Measurement of physical breakdown by dry matter loss after deposition
Application of droppings at different rates to pasture to test
effect on vegetation growth
Preliminary seedbox trials incorporating droppings in seedbed and
subsequently measuring growth of cress and Yorkshire fog
Separation of grit from gut contents and droppings for mineral
contribution to pasture

5.3. Pressure on Crops

3.3.1 Cereals

Enclosure established to assess effects of grazing on young oat crop (Fox Bay)

Subsequent simulation of 3 levels of grazing to determine effects on harvest

Measurement of grain loss after cutting until carting

Impact on cut oats (Port Howard) by counts, gut contents and analysis, and droppings, grain and grit collections

3.3.2 Brassicas

Enclosure then cages established to assess winter pressure on rape crop (Fox Bay)

Subsequently 2 levels of grazing simulated to assess effect on yield

5. Breeding Biology

Reproductive potential measured by clutch size and number, hatching success, brood size and sex ratio from hatching to flying. Also collected-egg dimensions and weights and gonad weights
Observations on breeding behaviour

7. Numbers

Regular counts on known areas to determine grazing pressure and local and seasonal variations on different habitats

8. Disease

Autopsy of dead and sick birds

Counts of adults to determine sex ratio

9. Body Parameters

Collection of weights and various measurements related to age

10. General Biology and Behaviour

Observations on predation

Observations on intraspecific and interspecific behaviour

11. Measurement of shelter effect of enclosures on vegetative growth

B. ASPECTS FOR FUTURE STUDY

1.1 Feeding Habits

1.1.1 Competition for foods and food selection

1.1.2 Amount of food eaten

Gut contents and analysis from birds feeding on reseeded ground especially mixtures (Roy Cove, Teal Inlet, San Carlos); on new (Darwin) and established (Port Howard) grass/clover mixtures.

Gut analysis from major habitat types

1.1.3 Habitat preference

Dropping counts on areas of Feeding Habits study

- 1.2 Droppings
 - 1.2.2 Food value to sheep
 - Nutritive analysis of droppings
- 2.1 Feeding Habits
 - 2.1.1 Quantitative and qualitative effect of grazing on vegetation
 - Nutritive analysis of protected and grazed vegetation at important times, on young and old plants etc.
 - 2.1.2 Alteration of abundance of desirable sheep food plants
 - Gut analysis and vegetation analysis where birds feeding on grass/clover and grass/grass mixtures; $\pm$ enclosures
- 2.2. Droppings
 - 2.2.1.1 Nutrient contribution to vegetation
 - Nutritive analysis of droppings
 - Rate of chemical breakdown
 - Nutritive analysis of vegetation and derived droppings to estimate digestibility
 - Chemical analysis of gizzard grit
- 3.3. Pressure on Crops
 - 3.3.1 Cereals
 - 3.3.2 Brassicas
 - Further assessments of impact of grazing on yield
 - 3.3.3 Others
 - Use of cages to assess effect of early grazing on subsequent hay crop (Roy Cove)
 - Use of cages to assess impact on newly established tussac plantations
- 4. Interaction with Man
 - Assessment by questionnaire survey in Stanley and Camp separately
- 5. Breeding Biology
 - Collection of comparative data from disturbed (mainland base) and undisturbed (Cape Dolphin/Bull Point) areas
- 7. Numbers
 - Distribution and grazing pressures on variety of major habitats
- 11. Miscellaneous
 - Assessment of quantitative and qualitative effect of shelter on vegetation by microclimate measurement and enclosure

C. ASPECTS REMAINING

Not all of these can be investigated easily but where possible relevant information will be obtained from the scientific literature and from discussions with various people.

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- I.3 Transmission of disease
- I.4 Buffer in predation

2 Interaction with Vegetation

- 2.1 Feeding Habits
 - 2.1.1 Quantitative and qualitative effect of grazing on vegetation
 - 2.1.2 Alteration of abundance of desirable sheep food plants
 - 2.1.3 Physical damage to pasture
 - 2.1.4 Effect of trampling
- 2.2 Droppings
 - 2.2.1 Manurial value
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- 7 Numbers
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If an extension is granted I propose spending that time on a mainland farm given a suitable base can be found and a farmer willing and able to accommodate the study and ourselves. I will continue and extend the work I have been doing here on Carcass with the aim of making a more comprehensive investigation of the goose problem. If not granted then an early move to the mainland is important.

With or without an extension I think the presence and work of the G.T.U. will be of great benefit to the study.

However, I must point out that the study was requested by the farmers and its success depends considerably on them, regardless of personal views. I do not expect any farm to stop work just so I can visit to do some work, of course, but I have had to wait weeks, sometimes months, before being able to visit. Consequently some experiments have had to be abandoned and others have been spoiled, sometimes for the year. The more delays there are the more time and therefore money is wasted and the value of the study reduced.

I hope that this information will be of some interest or help to you and I would welcome any comments, suggestions or additions you would like to make to this letter or the Analysis and progress report.

I look forward to hearing from you or to meeting you again in the future.

Yours Sincerely,

Cadogan Island
Agricultural Department,
Stanley, Falkland Islands,



(91)

18th July 1975

Dear John,

As John is pushed for time I'm scribbling
this note for him.

Would be very grateful for a complete copy
to be made of the enclosed: one copy to be sent to every
farm, an additional copy sent to Chairman S.O.A marked
"for information". and one copy for the Chief Secretary.

Many thanks

Yvna Harrodine.

P.S. Any spare copies to
me please.

Many thanks

J.H.

File
PCO/S/4

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

SENT

92

Number

Office of Origin

Words

Handed in at

Date

18.7.75

To

HARRADINE CARCASS

SOA MEETINGS HAVE ENDED EARLIER THAN ANTICIPATED AND SOA WILL
HAVE TIME SEE YOU NEXT WEEK YOU SHOULD THEREFORE COME IN ON
MONDAY. FLIGHT HAS BEEN BOOKED.

CHIEFSEC

Time

Telephoned to R/T Studio & Air Service 1200 hrs 18-7-75

70015/11

97
11



16th. August 1975.

Mr. J. Haradine,
Carcass Island.

Dear John,

Thank you for your letter dated 11th. August.

Concerning the experiments you have in mind on resown ground.
We have the following:

1. The cocksfoot and clover trials which you saw last year.
2. About 100 acres of Yorkshire fog, sown last autumn, which is up and on which a thousand geese have been grazing all winter.
3. We will sow about 50 acres of cocksfoot in October. This ground will be treated with 1 cwt. super phosphate to the acre.
4. We will sow in October/November about twenty acres of kale, swedes and a small area of a new type of rape. This will be treated with 1 cwt. of superphosphate and one cwt. of Fisons 20.10.10.
5. The area mentioned in 2. will be treated with 1 cwt. of 20.10.10.
6. We also have a strip of ground about three miles long and seventy yards wide which was rotovated last summer, burnt in the early autumn and sown to Yorkshire fog. It will be interesting to see whether this strip in LaFonia white camp will take this summer.

Concerning accommodation for you. I regret to say that considering the circumstances I cannot keep the house I offered you some months ago vacant indefinitely and I will have to withdraw the offer.

When you do formulate some firm plans, please let me know and I will then see whether there will be a settlement house available at that time.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'B. Hardcastle'.

B. Hardcastle.

c.c. Chief Secretary.

Pro/S/11

Caracas Island
Agricultural Department,
Stanley, Falkland Islands,

102



25th Aug 1975

Dear Mr Monk,

I require to visit San Carlos in the near future to collect information from the succeeded experimental areas. I would be glad of approval to do so.

Yours sincerely
J. S. Hammond

Has he not got a supply of forms to seek approval for flights?

Yes and has been instructed to use them