



## Current Reports

### Wildfowl Survey in south-west Asia : progress in 1967

#### Introduction

Renewal of the World Wildlife Fund grant referred to last year permitted further expansion and consolidation of the survey as outlined in previous reports. Plans for a regional conference on wildfowl for which the Government of Iran had kindly offered to be host had to be amalgamated with those of the I.U.C.N. Ecology Commission in a meeting on Middle Eastern wetlands which was held in Ankara and Istanbul from 9th-16th October. The after effects of the June war unfortunately prevented many countries from being represented, but the conference nevertheless proved extremely stimulating to all interested in wildfowl and wetland conservation in south-west Asia.

Plans for 1968 include co-ordination of the mid-winter census, co-operation with the Pakistan Wildlife Committee in reviewing the status of wildlife in Pakistan and participation in the 3rd International Wildfowl Conference at Leningrad in September.

Progress and prospects in the region can best be summarized country by country.

#### Egypt (U.A.R.)

The first International Festival of Duck Shooting referred to last year was apparently so successful that a second International Festival was arranged in 1967-68 from 25th November to 'late in January'. According to the Egyptian Gazette of 21st November this was to be attended by thirty Lebanese, one American and the Ambassadors of the Soviet Union, Japan and Indonesia. In view of the obvious governmental interest in the tourist attraction of wildlife in the U.A.R. and the international importance of the Nile delta wetlands, every effort is being made to ensure representation of the U.A.R. at the forthcoming conference in Leningrad.

The Smithsonian Institution research programme in the Nile Delta was unfortunately interrupted by the June war and cannot be continued for the time being. In the meantime however any wildfowling or ornithologists visiting Egypt in winter on business or on holiday can make valuable contributions to knowledge by counting and recording wildfowl seen on the principal delta lakes around Alexandria and Port Said.

### Jordan

For the first time records have been made of wintering wildfowl at Azraq Oasis through Ainsworth Harrison of the British Embassy, Amman. In spite of the great interest of this area to ornithologists in recent years it has not previously been studied in winter. Observations to date indicate that it is an area of the first importance and that it deserves as much detailed attention in winter as it has had during spring and summer.

### Iraq

A mid-winter expedition was made by staff of the Iraq Natural History Museum as a contribution to the 1967 International Wildfowl Census and a further expedition is in hand for the 1968 Census in collaboration with Monsieur Jacques Viel-liard of the I.W.R.B. Apart from this, field work had unfortunately to be curtailed due to the severe economic effects of the June war.

Nevertheless some valuable observations are being made in the Diwanayah area by Ir. Van't Leven who is a temporary resident.

### Iran

Thanks to the enthusiastic interest of the Department of Game and Fisheries a reconnaissance survey was made in the south-west Caspian region as a contribution to the 1967 Census, and a more detailed survey is in hand for the 1968 Census. Some more ringing has been done which has already resulted in a few recoveries from the U.S.S.R., and an important part of the Pahlavi Mordab has been set aside as a wildfowl sanctuary.

With the help and encouragement of the Pahlavi University at Shiraz, Lindon Cornwallis has been able to intensify his studies on a group of wetlands of outstanding interest and importance. As a result of these studies the whole of Lake Neiriz and the surrounding hills is being scheduled as a National Park and another area is likely to follow which includes Lake Perishan (Famur). These areas provide wintering grounds for tens of thousands of wildfowl including a fair number of geese; breeding grounds of flamingos, pelicans, and Marbled Teal *Marmaronetta angustirostris*, as well as small numbers of Palaearctic ducks and waders. A semi-detailed winter survey was made in collaboration with the Department of Game and Fisheries and plans are in hand for detailed studies under the International Biological Programme. Some useful

studies in the Caspian area were recorded during the year by Nielsen and Speyer (1967) who continue their interest in other parts of Iran.

Bad news from Iran however was that the Seistan lowlands (Savage 1965) have very largely dried out as the result of increased irrigation water usage in Afghanistan and that many of the human as well as wildfowl inhabitants are having to leave the district. The Hamun-e-Helmand and Hamun-e Sabari were until quite recently wetlands of international importance particularly in late winter and during spring passage. Also, though not satisfactorily recorded, they are known to have been breeding grounds for several species including the White-headed Duck *Oxyura leucocephala*, Marbled Teal and Ruddy Shelduck *Tadorna ferruginea* amongst others. Only Hamun-e Puzak (wholly in Afghanistan) apparently remains viable and even this is so reduced in size that the margins now largely consist of mudflats instead of the former reed beds.

### Afghanistan

In June the writer made a short reconnaissance expedition to Lake Ab-e Istadah (about 170 miles south of Kabul) in order to determine whether or not the Common Shelduck *Tadorna tadorna* and Greater Flamingo *Phoenicopterus r. ruber* were breeding there since both these species occur every winter in the northern Punjab of West Pakistan and this seemed to be the most likely breeding ground. Over sixty Shelduck were seen, mostly in pairs, and one brood of downy young. Although the connection is not proven there is every reason to believe that these are the same birds which appear in West Pakistan every winter in similar numbers.

In the case of the flamingos however there was no evidence of them breeding in 1967 though they are known to have bred there in recent years, and only a small number of non-breeding birds was found. At the same time there was depressing and ample evidence of heavy disturbance by shooters from Kabul for whom the lake is now readily accessible by the new American-built motor road which passes only twenty miles to the west of it.

Some valuable observations on wildfowl round Kabul were published last year by G. and J. Niethammer (1967a, b). These include the first record of Indian Pygmy Goose *Nettapus c. coromandelianus*, in Afghanistan, and of breeding of

Black-necked Grebe *Podiceps caspicus*. Both these observations tie up with recent changes in distribution of these species in West Pakistan. The Pygmy Goose is now found in the Salt Range lakes in summer and early winter, and the Black-necked Grebe is now a common winter visitor. Neither species were previously recorded in spite of intensive observations over the last forty years.

### Pakistan

A second expedition from the World Wildlife Fund, led by Guy Mountfort, visited Pakistan in October-December as the guests of the Pakistan Government to complete their preliminary investigations into the problems of wildlife conservation in Pakistan which were begun last year. Their itinerary included a visit to the mouth of the Indus which is a notable wetland area for wildfowl in winter and in summer as a breeding place of ibises and storks. They also visited the Sundarbans (Ganges/Brahmaputra delta) which was disappointing for waterfowl, but above all the *haors* of Sylhet. The *haors* are large areas of permanent flooding and now attract very large numbers of wildfowl presumably because the burgeoning human population elsewhere in East Pakistan is causing increasing disturbance to the areas they formerly frequented. During the expedition's visit the ducks on Hail *Haor* amounted to over forty thousand and on a small part of Hakaluki *Haor* there were over twenty thousand. A great part of these numbers were made up of whistling ducks of which about 80% were Javan Whistling Duck *Dendrocygna javanica* (called locally Indian Whistling Teal) and the remaining 20% Fulvous Whistling Duck *Dendrocygna bicolor* (Greater Whistling Teal). The latter had not been recorded in India for over ten years and was believed to be extinct. Recent information from Assam however is that the Greater Whistling Teal breed in numbers in below Gauhati in the Brahmaputra valley, and the Indian Whistling Teal in larger numbers further upstream. Neither species is found there at other times of the year. This again provides an interesting correlation between populations as the Whistling Teal do not breed in Sylhet in significant numbers.

The proposed Wildlife Commission was not set up during the year but a Wildlife Committee is however being appointed to implement the recommendations of the Mountfort expedition, and the Wildfowl

Survey will be assisting this committee during 1968.

As reported last year, Khabbaki Lake (32° 37' N, 72° 14' E) is now a wildfowl sanctuary. Enforcement however proved difficult during the 1966-67 season, but there has been a great improvement in the 1967-68 season. Wildlife management is now in the hands of the Forest Department who are discharging their responsibilities with greater zeal than the former Game Department could with their limited resources. As a result, the numbers of duck wintering on Khabbaki in 1967-68 have been exceptional, including over 1,000 White-headed Ducks.

### India

There was a particularly good response from observers in India during the 1967 Wildfowl Census and though many of the most important wetlands are still not covered much valuable information came to light. Moreover a reconnaissance was made to Chilka Lake to weigh up the possibilities of conducting ringing activities there and greatly increased efforts are being made at the Keoladeo Ghana in Bharatpur where the Bombay Natural History Society/W.H.O. ringing camp has been operating throughout the winter, and is still in the field.

One of the most interesting discoveries during the year was the enormous concentration of Garganey *Anas querquedula* at Vandal Swamp near Point Calimere, Madras State, numbering around 125,000. Large numbers were also found in Ceylon where the species is much more numerous than previously. These taken together may well prove to be the principle wintering grounds of this species in Asia today.

### Ceylon

Extremely thorough observations were returned during the 1967 Wildfowl Census. With the help of these and with the advice of Mr. C. E. Norris and others it was possible to compile a comprehensive working paper on the wildfowl and wetlands of Ceylon within a matter of only three months. This included a review of the literature and brought to light the remarkable increase of Garganey, and Pintail *Anas acuta*, referred to above. It is also typical of what we hope to achieve in this survey by taking area by area, and reviewing the present status of wildfowl and wetlands in the light of previous literature, and with the co-operation and advice of local inhabitants.

### Turkish Meeting on Wetlands in the Middle East

The technical meeting of the I.U.C.N. Commission on Ecology held in October, and attended by 40 specialists from 14 countries, provided the first opportunity for a semi-detailed review of the wildfowl and wetland situation in south-west Asia. General reviews had already been submitted to the 2nd European Meeting on Wildfowl at Noordwijk, Holland, and the I.W.R.B. Meeting on International Co-operation in Wildfowl Research at Jablonna, Poland, in 1966, but here it was possible to consider the situation species by species and also to include tentative proposals for a MAR list for south-west Asia.

The conference was extremely well arranged by our Turkish hosts and brilliantly administered by Sir Hugh Elliott of the I.U.C.N. as evidenced by the fact that, through the co-operation of I.U.C.N., and the assistance of George Atkinson-Willes at Slimbridge, he has been able to get the proceedings to press within four months of the conference — which must be a record—and there is no doubt that the stimulus to further research and activity given by this conference will be greatly enhanced by prompt distribution of the proceedings particularly when so many national delegates were unable to attend.

CHRISTOPHER SAVAGE

### References

- Previous progress reports will be found in the Wildfowl Trust Annual Reports, 16-18.  
 NIELSEN, B. P. and J. H. SPEYER. 1967. Some observations of birds in northern Iran. *Dansk Ornith. Foren. Tidsskr.* 61 : 30-39.  
 NIETHAMMER, G. and J. 1967a. Neunachweis für Afghanistans vogelwelt. *J. Orn.* 108 : 76-80.  
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### Wildfowl Ringing in Britain

The statistics of wildfowl ringing, mainly carried out at stations operated by or in collaboration with the Wildfowl Trust, have hitherto been presented in 'seasons' running from 1st August to 31st July. These originated as reflections of the main periods of activity in duck decoys (early autumn and winter). They have less relevance to stations which operate the year round as at Abberton, Essex, or mainly in the summer months as at Loch Leven, Kinross. Borough Fen Decoy, Northamptonshire, has also for some time been making substantial catches in July. Attempts to erect a natural 'season' coinciding with one duck generation invari-

ably fail owing to the different breeding periods of the various species. A final, administrative, objection was that the 'season' ended after the time that the printers required copy for our journal, published in the early autumn. The statistics published were thus some eighteen months out of date.

For all these reasons we will in future present the ringing data according to the calendar year, giving in this volume those for 1966 and for 1967. The former overlap only slightly (because most duck ringing is done before the turn of the year) with those published for 1965-66 in the 18th Annual Report.

## 1966

### Swans

This year saw the end of the Wildfowl Trust's financial encouragement of the widespread ringing of Mute Swans by amateur workers. The 1,576 birds ringed brought the total since the beginning of 1960 to 14,921. Support for special studies of this species is being continued. Eighteen Bewick's Swans were caught and ringed at Slimbridge, and six Whooper Swans were ringed, two at Loch Leven and four at Wards Farm.

### Geese

Details were given in the 18th Annual Report of the 315 geese ringed in 1966.

### Ducks

The table gives the details of the 5,265 ducks caught and ringed by the Trust and its helpers during 1966. It was not a particularly distinguished year with only Borough Fen Decoy producing anything like its normal catch. Major General C. B. Wainwright had a distinctly poor year at Abberton Reservoir with very low catches of both Teal and Mallard. The numbers of Shoveler and Tufted Duck ringed there provide the only bright spots. Reports on 1966 at Borough Fen Decoy by Mr. W. A. Cook, and at Dersingham Decoy by Mr. R. Berry, appeared in the 18th Annual Report. Small numbers of Mallard and Teal were ringed at Orielton Decoy (Mr. P. Stuttard), Wards Farm, Dunbarton (Mr. R. Shaw), Ludham, Nor-

folk (R. S. Smithson), Valley, Anglesey (Mr. R. Palethorpe), and at Abbotsbury Decoy, Dorset (Mr. F. Lexster), where the catch also included 18 Pintail. We are very grateful to all these gentlemen for their continuing help. At Deeping Lake, where Mr. Cook operates a cage trap by kind permission of Messrs. Dandridge, useful numbers of Pochard and Tufted Duck were included in the catch of 257. Finally our research workers at Loch Leven, Kinross, caught 88 adult Tufted Ducks and 61 ducklings in their total of 294.

## 1967

### Swans

The Mute Swan continued to receive attention, with the Trust supplying rings and other support for a number of studies. Twenty-five Bewick's Swans were caught and ringed at Slimbridge.

### Geese

Greatly increased attention was paid to Canada Geese and ringing with Trust support was carried out in three areas. In Yorkshire Mr. A. F. G. Walker organised a number of round-ups resulting in the capture of 305 birds. In the west Midlands 237 geese were caught by Dr. C. D. T. Minton and his team in Staffordshire and Warwickshire, while further west at Ellesmere the Shropshire Ornithological Society caught and ringed 237 in a single round-up.

### Ducks ringed, 1966.

<i>Species</i>	<i>Abberton</i>	<i>Borough Fen</i>	<i>Deeping</i>	<i>Dersingham</i>	<i>Slimbridge</i>	<i>Loch Leven</i>	<i>Other stations</i>	<i>Totals 1966</i>
Shelduck	38					2		40
Pintail			8				18	26
Teal	408	450	28	110	1	2	64	1063
Mallard	563	2089	137	165	453	69	174	3650
Gadwall	7			4		45		56
Wigeon	5		9		1	25		40
Garganey	3							3
Shoveler	32	11	5		6	2		56
Pochard	15		27		1			43
Tufted Duck	95		43			149		287
Goldeneye	1							1
<i>Totals</i>	1167	2550	257	279	462	294	256	5265

**Ducks**

The total of ducks ringed by the Trust and by helpers supplied with rings was 10,880, the highest number ever achieved in a year. The details are shown in the table and short reports from the major ringing stations follow. It is sufficient here to mention that at Abberton Reservoir the catches of Teal and Mallard were considerable improvements over those of the last year or two and that Borough Fen and Dersingham Decoys and Deeping Lake all had their best year's catch. One new ringing station started operation in 1967 in a very spectacular manner. Nacton Decoy, Suffolk, was converted to ringing in September 1967 with the kind

co-operation of Mr. G. M. T. Pretzman, and the decoyman, Mr. Tom Baker. Its catch by the end of the year included 426 Pintail, which compares with a grand total of 910 marked in this country since ringing began in 1909. We are hopeful that the Trust can achieve a permanent status at Nacton. If this is so, an account of the history of this fascinating decoy will be published in the next volume of WILD-FOWL.

Useful numbers of Teal and Mallard were ringed at Orierton Decoy (Mr. P. Stuttard), Valley, Anglesey (Mr. R. Palethorpe), and Abbotsbury Decoy, Dorset (Mr. F. Lexster). We thank these people for their support.

**Ducks ringed, 1967.**

<i>Species</i>	<i>Abberton</i>	<i>Nacton</i>	<i>Borough Fen</i>	<i>Deeping</i>	<i>Dersingham</i>	<i>Slimbridge</i>	<i>Loch Leven</i>	<i>Other stations</i>	<i>Totals 1967</i>
Shelduck	12				1				13
Pintail	3	426	6	1		6			442
Teal	1090	248	465	8	479			99	2389
Mallard	1227	844	2669	427	977	973	109	181	7407
Gadwall	1			2	16	8	11		38
Wigeon	26	121	2	4	4		7	4	168
Garganey	25		2		2				29
Shoveler	36		6	4		7	1		54
Pochard	19			17					36
Tufted Duck	87			69			146		302
Goldeneye				1					1
Goosander	1								1
<b>Totals</b>	<b>2527</b>	<b>1639</b>	<b>3150</b>	<b>533</b>	<b>1479</b>	<b>994</b>	<b>274</b>	<b>284</b>	<b>10880</b>

M. A. OGILVIE



## Abberton Reservoir, 1967

The first part of the year produced rather few ducks in the traps with Teal, in particular, in short supply. Useful numbers of Tufted Duck and Pochard were caught during April, May and June, and in July I caught 25 Shoveler and 8 Garganey.

Trapping improved in August and September and though it was a poor Teal year by the standards of a few years ago, at least I was catching more than in 1966 which was a very bad year. I caught just under 900 Teal from August to the end of the year compared with 408 in the whole of 1966, but also compared with over 2,000 in both 1961 and 1962. For the third year running I caught more Mallard than Teal which is a complete reversal of the situation in past years.

Despite the improvement this year I am still convinced that Teal numbers are declining, the reason for which remains a major problem. Two questions, without answers as yet, have been raised by my Teal ringing. Firstly where is the breeding area for the regular influx of young birds that we get each December? Secondly what is the wintering area of the birds we catch each spring in a small trap set in a splash at the side of a field? We have had several retraps of these birds in the same trap at the same time of year.

The height of the water in the reservoir greatly affects the numbers of birds on and about it, and therefore the numbers that can be ringed. This especially applies to the ducks and other water birds as well as waders. The main supply for the reservoir is pumped through two 36-inch pipes, eleven miles from the River Stour, though only when there is sufficient flow in the river. Rainfall on and around the reservoir does little but compensate for evaporation through the year. In a wet year the flow is sufficient to keep the reservoir reasonably full, i.e. near 'Top Level', when it holds some five thousand million gallons. Several million gallons are pumped out daily, filtered and then pumped on to meet the ever-increasing requirements of the population and industry of south Essex.

In a dry year no water can be pumped in and the level starts to fall. In a very dry year the level may reach 5 feet below top level by July and an island of about 11 acres then appears 400 yards out from the south-west corner of the reservoir, as well as an area of mud round the 120 acre middle reservoir. When the level falls another 3 feet a fringe of mud appears

round part of the edge of the main reservoir, and a further 2 foot fall (ten feet below top level) produces mud round most of the edge of the 1,000 acre main reservoir.

Only three times in the last nineteen years has the island been uncovered in the spring. As well as ducks and waders, colonies of Black-headed Gulls, Common and Little Terns have nested there, and in 1950 a pair of Gull-billed Terns, still the only breeding record for this species in Britain. As soon as the island appears, ducks and waders gather there, as it is surrounded by at least 400 yards of water and entirely free from normal disturbance. The short daily visit that I make to inspect my traps does not keep them away for long. The traps are floated over to the island on empty ten-gallon drums and as soon as they are installed some really adequate ringing, especially of Teal, can begin.

The breeding success of many birds, particularly Great Crested Grebes, Shelducks and Mute Swans, is almost entirely dependent on the height of the water. Great Crested Grebes require only a gradual fall from April to the beginning of June. A quick rise floods the nests while a fast fall leaves them high and dry and the nestlings are unable to reach the water. The heavy rain in the second week of April this year caused the water level to rise a foot. At one time 140 million gallons in a day poured in from the stream entering the head of the reservoir. The Grebes were flooded out and they did not attempt to re-nest.

Both Shelducks and Mute Swans do best when there is some mud round the margins at the time when their young hatch. This requires a drop of at least five feet by June, which very seldom happens. The young can then feed in shallow water and come out to rest on the bank. Mute Swans are also affected at the time of their moult. When the water is very high in July and August the underwater weed is too deep for the swans to reach. The herd of swans which comes to the reservoir to moult, having shed their flight feathers, are then caught out and soon lose condition. Some wander off across country, others we manage to catch and transfer to the tidal rivers where they can pick up a living round grain mills and wharfs. At one time this moulting herd reached over 500 but after the disaster of 1958 when I found no less than 50 dead, they have learned the advan-

tages of the Rivers Stour at Mistley and Blackwater at Maldon as places to moult.

The following table shows how the height of the water has affected the breed-

ing of the Great Crested Grebes, Shelducks and Mute Swans, and also the moulting herd of swans in the same period.

#### Effects of water level at Abberton Reservoir.

Year	Month	Height of water below top level in feet	Results
1958		Never below 2½	Breeding: very bad for Mute Swans Ringing: bad
1963	July	1 - 3	Breeding: very bad for Shelducks and Mute Swans
	August	3 - 4½	
	Oct.-Nov.	7	Ringing: good
1964	July	2	Breeding: poor
	Sep.-Dec.	5 - 12	Ringing: good
1965	Jan.-Nov.	12 - 5	Ringing: very fair Breeding: bad for Grebes—only 7 young from 7 nests; best ever for Shelducks—12 broods, 60 young
1966	whole year (Apr.-Jun.)	Never below 2 Only 1" - 10"	Ringing: bad Breeding: best ever Grebes—25 successful pairs; very bad Shelducks and Mute Swans
1967	Jan.-Jul. Sep.-Oct.	Less than 1 Below 5	Breeding: bad for all species Ringing: only fair, fall too late

Moulting was disastrous in 1958 and 1963, and conditions were bad in 1966 and 1967.

C. B. WAINWRIGHT

## Borough Fen Decoy, 1967

After being ice-free for the first few days of the New Year, the Decoy pond was frozen until 18th January. It then remained clear of ice for the rest of the month. The total catch of ducks was 144, of which over a third were taken with the aid of Piper, the Decoy dog; this is a very high proportion for winter catches. With no frosts in February there was a good take of 184 ducks, only 28 of these following the dog which is closer to the winter average. The clear fine weather at this time enabled me to carry out some orientation releases involving 152 Mallard. This has considerably boosted the combined total of releases for this month of the year.

At the beginning of March I set my sights on a season's total of 3,000 before the season closed at the end of the month. However the weather stayed good and probably helped to induce the mass exodus of ducks on the 6th. I fell nine short of my target, the March catch of 61 bringing my season's total to 2,991.

A few early passerine nests were recorded in March, the first being a Song Thrush's with four eggs on 21st. Two Blackbird's nests with eggs were located

on 27th. After several Woodpigeons had been picked up dead in the Decoy wood, the Ministry of Agriculture was informed and eight corpses out of a total of 30 found were taken away for analysis. Spring migrants were generally late arriving this year and it was not until 18th April that the first Willow Warbler was heard. It was closely followed by a Swallow seen the same afternoon.

With the departure of the last few ducks on about 6th April, the annual maintenance work began. A number of dangerously large willows were felled and many elders were cut back to encourage them to shoot new growth and so provide the thick low cover essential to a decoy wood. Seventy nests were found by the end of April and the first nestlings—four Song Thrushes—were ringed on 19th. Turtle Doves were early this year, arriving on 29th, beating the first Cuckoo by three days. Swifts appeared over the Decoy on 2nd April followed by a Nightingale which unfortunately did not stay to breed.

The annual Open Weekend was held on 20th and 21st May. It was a pity that it rained heavily from 13th to 19th as this



spoil the paths and probably kept some people away. The total number of visitors, 51 including 16 Members, was well down on last year.

The greater part of May was spent in replacing netting on the pipes; nearly all that required renewing had been in place since 1959. Eight years seems to be the longest one can expect it to last and it is hoped that a rota can be established of renewing one pipe each year from now on. During June maintenance continued apace with the usual rush to complete it before the start of the catching season. Vegetation encroaching on the perimeter track was cut back to allow a vehicle to be used to transport grain, potatoes and other food to the East, South-east and South pipes. Elders and willows were trimmed hard back to improve the view from the hides.

During May and June the number of passerine nests recorded rose to 180 and a large number of nestlings were ringed. After 15th June nest-searching dropped off as no visits were made to the margin of the pond or to the reed bed so as not to spoil the early lead of ducks which began to develop. Eleven Mallard were caught while feeding in the West pipe on 26th and 28th June, and there was a good lead by early July. During this month 95 Mallard and seven Teal were caught of which 37 were inveigled into the pipes by Piper. Only seven of the Mallard were adults and three of these were actually flightless.

August opened with an abundance of wildfowl on the pond, a happy state of affairs which was to continue to the end of the year. The month's total of 374 was managed in only 19 days catching as I took a week's leave from 19th to 26th. As is usual at this time of year the greater part of the catch was made with Piper, 221 ducks falling victim to his charms. Some late passerine nests were found during August, including a Greenfinch's which was found newly-built on 1st and with three eggs in it on 8th. A Linnets' nest with one egg was found on 5th. The first excursion of the season, flight-netting on the Wash, was made on 10th when 63 waders and gulls were caught.

September was the peak month of the year. Many young ducks were present, easy to catch and very ready to follow the dog, and unlike 1966 there were no farming activities close by to disturb the pond. During the first week 476 ducks were caught. The month's catch in the Decoy was 1,361, compared with the previous best month's catch of 1,129 in

September 1959. Then 480 (42%) of the catch was dogged, this year 739 (54%). The Decoy was worked on 25 days in the month, the best being 2nd and 4th when respectively 102 and 111 ducks were caught. Despite there being little time available for ringing birds other than ducks, 133 were caught this month.

During October 763 ducks were caught in 22 catching days, 205 being dogged. I netted for waders on the Wash again catching 50, including some gulls, as well as a lone Wigeon. The non-duck ringing totals this month rose to 234 including a very late Spotted Flycatcher on 2nd. The first frosts in November signalled the beginning of winter and the ducks, standing around on the ice, became much more wary and less inclined to follow the dog. This is clearly shown by the low proportion (10%) dogged of the month's catch of 538. There was a good day on 9th November when 83 ducks were caught. The area had been shrouded in thick fog for two days and the birds, presumably unable to find any feeding grounds, were forced by their hunger to feed well inside the pipes. Among other birds ringed were the first winter migrants, four Redwings.

December was a month of very changeable weather, commencing with fog and frost, and the pond had two inches of ice on it by 7th. A heavy snowfall on 8th brought in a big flock of thrushes feeding under vegetation and also high in the white poplars. Despite early morning ice-breaking only four ducks were caught between 7th and 15th. All things considered, the catch of 246 this month was very satisfactory. No birds were caught as a result of Piper's efforts although a great many came to within six feet of the

**Monthly totals of ducks caught at Borough Fen Decoy and Deeping Lake, 1967.**

	<i>Borough Fen Decoy Catch</i>	<i>% dogged</i>	<i>Deeping Lake Catch</i>
Jan	144	36	6
Feb	184	15	42
Mar	61	6	68
Apr	—	—	12
May	—	—	—
Jun	11	18	—
Jul	102	36	95
Aug	374	63	170
Sep	1361	54	200
Oct	763	26	66
Nov	568	10	48
Dec	246	0	12
Totals	3814	36	719

pipe mouth, obviously aware of the limit of safety.

My ringing totals for the year will be found in the wildfowl ringing table on p. 149 and in the table for other species on p. 154. During the year I continued to co-operate with research workers from the Medical Research Institute and from the Institute of Laryngology and Otology, University of London. Five hundred and sixty-four blood smears were taken, bringing the grand total up to 3,813.

By kind permission of the owners, Messrs. Dandridge, I was able to continue operating a cage trap on nearby Deeping Lake. Trapping was re-started here in 1966 after a break of four years. For the first part of the year it caught

steadily, though in small numbers, until trapping ceased in April. I started to bait the trap again in July and after a slow start over 100 ducks were caught in both August and September. The site's past reputation for catching diving ducks was re-affirmed with totals this year of 69 Tufted Duck and 17 Pochard. Over 400 Mallard were also caught and many of these were used in orientation releases. Other species of birds are also taken in the trap and these are included in the table of ringing totals on p. 154. Useful numbers of Herons, Great Crested Grebes, Coots and various gulls were caught and ringed.

W. A. COOK

## Dersingham Decoy, 1967

At the start of the year the Decoy pond was frozen over, but the water in the single pipe was kept open and fed heavily, and a flight of Mallard came in regularly. However, the Teal left during the cold weather and did not return even after the thaw. Forty-seven ducks were caught and ringed during January but only a handful in the next two months, after which the Decoy was closed for the season with a total catch of 343.

Small numbers of Mallard and two Gadwall were caught at this time in the two cage traps which had been removed from the Decoy pond and re-built in Coldens Creek, which comes to within a quarter of a mile of the Decoy, to the north. It is about three-quarters of a mile long and never more than 40 feet wide, twisting and turning through a thick growth of reed. In 1966 over 200 wildfowl were regularly flying into the creek during August and September, whereas the numbers using the Decoy pond never exceeded 100. It was therefore hoped that by moving the traps the total catch could be increased.

During February work got under way on restoring another pipe. The North-west pipe was selected as this would enable the Decoy, with its existing South pipe, to be operated on the maximum number of days in the prevailing westerly winds. The ducks also show a preference for loafing on this side of the pond which gets a lot of sun. The pipe did not require a great deal of clearing, just some hawthorn and alder scrub removing and

the tail end digging out and re-aligning. The work was completed by the middle of July in time for the start of the catching season.

A wildfowl breeding survey was conducted during the summer in the area of the Decoy and Coldens Creek. At least 26 pairs of Mallard bred, possibly as many as 36, together with two pairs of Shelduck and single pairs of Teal, Shoveler and Mute Swan.

With two pipes now in working order and good numbers of birds in the area it was hoped that a catch of 1,000 might be possible during the 1967-68 season. In fact the 1,000 mark was passed on 20th November, a red-letter day in the history of the Decoy. This is the first time for over 100 years that 1,000 ducks had been caught, the great difference being that this time they were ringed and released, not killed for the market as in the past.

The Decoy was short of water in July and August and many waders came and fed on the mud which was exposed in the pipes and around the edge. Despite this the duck came in readily and 132 were caught in August, half of which were Teal. A small number of Gadwall started using the pond in late July and these built up to 25 by 5th August. Before they departed in September, 11 had been caught, six of them in the newly-completed pipe.

The number of Teal flying into the pond rose to over 300 by the end of September but dropped to around 100 after the stubble fields in the area had

been ploughed. Eighty-three Teal were caught in September and 182 in October. The number of Mallard coming in remained at about 100 during both months but the birds must have been constantly changing as 107 were ringed in September and 203 in October. The best day in the year was 30th October when 29 Mallard and 14 Teal were ringed.

After a sharp frost on 17th November which froze the pond, the number of Teal dropped again to about 50, but the Mallard increased to around 200 and stayed at this level to the end of the year. The catch in November was 402. On several days in December the pond was frozen over. The North-west pipe and the creek by the two traps were kept open by daily ice-breaking. This effort was rewarded with catches of over 20 on three separate days.

The total number of ducks ringed during 1967 was 1,479. The monthly breakdown will be found in the accompanying table. The totals for other species ringed

are given in full in the table below. All the catches were made by "showing blind" to duck feeding up a pipe. A dog is most effective in early autumn (as shown in the Borough Fen report) so, if plans to acquire and train one materialise, the catch may be considerably boosted.

**Monthly totals of ducks caught and ringed in Dersingham Decoy and Coldens Creek, 1967.**

	<i>Mallard</i>	<i>Teal</i>	<i>Others</i>	<i>Totals</i>
Jan	37	10	—	47
Feb	15	—	2	17
Mar	17	—	—	17
Apr	—	—	—	—
May	—	—	—	—
Jun	—	—	—	—
Jul	12	3	3	18
Aug	64	66	3	133
Sep	107	83	8	198
Oct	213	182	1	396
Nov	266	131	5	402
Dec	246	4	1	251
Totals	977	479	23	1479

R. BERRY

**Numbers of birds, other than ducks and swans, ringed at Abberton Reservoir, Borough Fen Decoy and Deeping Lake, and Dersingham Decoy, 1967.**

<i>Species</i>	<i>Abberton Reservoir</i>	<i>Borough Fen Decoy and Deeping Lake</i>	<i>Dersingham Decoy</i>
Great Crested Grebe	1	8	
Little Grebe	10		
Heron		21	2
Water Rail	17	2	7
Moorhen	19	70	81
Coot	52	97	
Oystercatcher			3
Lapwing	5		
Snipe	110		3
Jack Snipe	5		
Green Sandpiper			8
Common Sandpiper	46		2
Redshank	3		1
Icelandic Redshank	3		
Dunlin	12		
Northern Dunlin	21		
Ruff	3		
Great Black-backed Gull		3	
Herring Gull		9	
Common Gull		42	4
Little Gull	1		
Black-headed Gull	6	92	5
Wood Pigeon		41	4
Turtle Dove	9	6	3
Cuckoo		1	
Kingfisher	1		
Skylark	6		
Swallow	3		17
Sand Martin	1		38
Great Tit	16	11	5

<i>Species</i>	<i>Abberton Reservoir</i>	<i>Borough Fen Decoy and Deeping Lake</i>	<i>Dersingham Decoy</i>
Blue Tit	13	24	42
Marsh Tit	1		
Willow Tit		2	4
Long-tailed Tit	4	21	10
Bearded Tit			5
Tree Creeper	1		2
Wren	31	8	1
Mistle Thrush	4	2	10
Fieldfare		1	61
Song Thrush	45	108	119
Redwing		53	23
Blackbird	77	159	187
Wheatear	1		1
Greenland Wheatear	2		
Whinchat	2		
Redstart	1		1
Nightingale	1	1	
Robin	35	23	19
Reed Warbler	44	9	39
Sedge Warbler	212	3	20
Blackcap	6	23	20
Garden Warbler		3	2
Whitethroat	86	9	6
Lesser Whitethroat	74		
Willow Warbler	31	6	9
Chiffchaff	16	5	2
Goldcrest	1	11	3
Spotted Flycatcher	2	7	11
Dunnock	90	53	47
Meadow Pipit	33		
Rock Pipit	8		
Pied Wagtail	75		4
White Wagtail	2		
Grey Wagtail	2		1
Yellow Wagtail	422		
Sykes Wagtail	1		
Starling	218	8	18
Greenfinch	61	116	66
Goldfinch	1	53	18
Linnet	46	65	14
Redpoll			11
Bullfinch	24	42	7
Chaffinch	51	19	39
Brambling		16	95
Yellowhammer	2	2	21
Corn Bunting	1		
Reed Bunting	76	3	17
House Sparrow		1	
Tree Sparrow	1	106	38
	<u>2154</u>	<u>1365</u>	<u>1172</u>

In addition Mr. W. A. Cook caught the following birds on the Wash: Oystercatcher 8; Grey Plover 1; Turnstone 7; Curlew 3; Bar-tailed Godwit 4; Redshank 8; Knot 18; Dunlin 55; Arctic Tern 1.

## Wildfowl censuses and counts in Britain

An important part of the research work of the Wildfowl Trust is the monitoring of wildfowl populations by means of censuses and sample counts. We have not hitherto published the immediate results of this work other than as information sheets to the many hundreds of amateur counters on whose help we rely so heavily. Analyses in depth are, of course, published at intervals. We feel, however, that the results of our running checks on the numbers of British wildfowl could usefully be given a wider dissemination.

### 1966-67

#### Goose censuses

Not only do many of the geese wintering in Britain form discrete populations, they also tend to congregate in large flocks to roost at relatively few places. It is therefore realistic to attempt complete censuses at certain seasons, with the aid of over a hundred amateur counters. A further useful feature is that the juvenile geese can be distinguished from adults in the field and this, together with the persistence of the family bond, enables much useful information on the composition of the populations to be gathered. The percentage of young birds found in the various goose populations during the winter, together with the average brood-size of the family parties, are given where available. The two figures give a very good indication of the breeding success attained the previous summer. Due to the exigencies of the weather in the Arctic, where nearly all our wintering geese breed, considerable annual variations can occur in the number of young birds produced. These may range from a virtually complete failure to breed, with less than 1% of young birds in the flocks and few broods of more than one, to an excellent breeding year when there will be over 40% of young birds and many broods of four or more.

Pink-footed Goose *Anser brachyrhynchus*. A census of this species was carried out in Britain on 5th/6th November 1966. 76,000 birds were counted, an increase of 9,000 on November 1965. Ringing has shown that the British wintering population of Pinkfeet comprises the entire breeding stock from Iceland and Greenland. Age-counts in November revealed that 1966 had been only a moderate breeding season (22.3% young birds; average brood-size 2.4).

European White-fronted Goose *Anser*

*albifrons albifrons*. On 15th January 1967 there were about 5,000 European White-fronts in Britain. At the time of the second census, held on 19th February, the total was 6,800. Using intermediate counts it was calculated that there was a peak in numbers of 7,300 during the second week of February. The European Whitefronts that come to Britain are part of a large (60-70,000) population that breeds in Arctic Russia and has its main wintering headquarters in Holland. Weather conditions in the latter country can affect the timing and numbers of visitors to British haunts. Breeding success was good in 1966 (31.5% young were found in December; average brood-size 2.6).

Greenland White-fronted Goose *Anser albifrons flavirostris*. No census was made of this race, indeed its scattered distribution, often in areas difficult of access, has so far made this impracticable. However age-counts were made in November at one of its Scottish wintering areas and showed a fairly good breeding year (26.1% young; average brood-size 2.6). This population breeds in west Greenland and winters almost entirely in Scotland, Wales and Ireland. It is thought to number about 12,000 birds.

Greylag Goose *Anser anser*. The Icelandic breeding population of this species, which winters entirely in Britain, was censused on 5th and 6th November 1966 when there were 60,000 birds present. This represents a considerable increase over the previous year. Breeding success was nevertheless only fair (19.6% young; average brood-size 2.5 in November).

Barnacle Goose *Branta leucopsis*. Two populations of this species winter in Britain. The Spitsbergen breeding stock winters on the Solway where the maximum count reached 3,000. In most winters part of the population, up to another 1,000 birds, probably does not come further than Norway. Breeding success was rather poor in 1966 (13.3% young; average brood-size 2.4).

The Barnacle Geese breeding in east Greenland winter exclusively in west Scotland and Ireland. No census was made as this involves an aerial survey and can only be carried out every four or five years. Counts in November at the major wintering place, Islay in the Inner Hebrides, were well up to normal despite a poor breeding year (13.0% young; average brood-size 1.5). The population probably numbers 18-20,000.

Light-bellied Brent Goose *Branta ber-*

*nicla hrota*. The small flock at Lindisfarne, part of the Spitsbergen population, reached 500 this winter. Weather conditions in Denmark, where the majority of the 2-3,000 birds winter, affect the numbers coming to Britain.

Censuses, organised by the Irish Wildfowl Conservancy, of the Greenland stock of Brent Geese, which winter virtually exclusively in Ireland, showed that there were about 8,000 birds present in mid-November 1966 and 6,200 in mid-February 1967. The numbers are a little higher than comparable counts in 1965-66, but still well below the 12,000 found in the Novembers of 1960 and 1961. Breeding success was better than in the two previous years (16% young).

Dark-bellied Brent Goose *Branta bernicla bernicla*. The peak count this winter was in mid-December and reached 15,600. This is slightly above the previous year and represents just over half the world population of this race (which breeds in Arctic Russia), the remainder wintering in France and Holland. Breeding success was very good (40.0% young).

M. A. OGILVIE

#### Duck counts

Most of the ducks wintering in Britain are not discrete populations and are widely distributed. Complete censuses are not therefore attempted, but since 1948 extensive sample counts have been made with the assistance of hundreds of amateur counters. The common species are now counted each winter on the middle Sunday of each month from September to March on some five hundred waters. For a selected 'priority' sample of about 120 of the main waters the counts are compared with similar counts made in previous years and an index of abundance for the season is calculated, related to a base line of 100 taken for the winter 1959-60 (called the 'Master' season). The figures are given in the table and discussed by species below.

Shelduck *Tadorna tadorna*. Although the indices may be affected by the timing of the arrival in Britain of the flocks returning from the Helgoland Bight moulting area, it is thought that there has been a genuine increase in numbers in Britain.

Teal *Anas crecca*. The autumn numbers were the lowest since 1958 but from January onwards there was some improvement and the seasonal index was the same as last year. However the north-west European wintering population of Teal, of which Britain holds a major share in mid-winter, remains at a low ebb.

Mallard *Anas platyrhynchos*. This was the best season yet and in nearly all months the counts were well above average, and in November and March were the highest on record.

Wigeon *Anas penelope*. Large numbers were reported in all months except December and the season as a whole was the best since 1961-62. No trends are apparent over the full period for which seasonal indices are available. This species has always been prone to short-term fluctuations in numbers visiting Britain each winter.

Pochard *Aythya ferina*. The record level reached last year has been maintained, and it seems that the pattern of previous increases is being repeated. This is the third time in 19 years that the population has shown a sharp increase after a period of comparative stability. The first occurred between 1952 and 1954, the second in 1960 and the third in 1965. To some extent these increases reflect the earlier arrival of winter migrants but they also show a substantial increase in total numbers.

Tufted Duck *Aythya fuligula*. The index for this winter is somewhat suspect because records were lacking from some important haunts. After a steady increase during the 1950s the population became stable and appears to have remained so, except for a slight drop in 1964.

#### Seasonal indices of ducks in Britain.

	Av. Index		Master season 1959-60	Av. Index 1960-64	1965-66	1966-67
	1948-53	1954-58				
Shelduck	47	74	100	90	103	106
Teal	49	62	100	67	47	47
Mallard	74	79	100	92	106	113
Wigeon	95	102	100	96	106	113
Pochard	73	95	100	129	194	195
Tufted Duck	63	90	100	97	120	97

### International wildfowl census

An important development in this field was the organisation of a single mid-winter count carried out nearly simultaneously in many countries of Europe, Asia and Africa. From the results it is not only hoped to learn much more about wildfowl distribution but also to arrive at some idea of total stocks. At the very least the wide coverage will form a better background against which to judge the results of more intensive studies in small areas, such as Britain. In particular we should know whether our increases and decreases are due to variations in local conditions or reflect changes in the total numbers of the whole population of a species.

The first such international wildfowl census was held in January 1967, based on the 15th of the month with counts admitted for a week on either side. The response in Britain exceeded all expectations, with counts being received from over 1,500 places. This is three times the number of sites normally counted. A summary of these results appears below:

Shelduck	36295
Pintail	7725
Teal	32890
Mallard	156993
Gadwall	236
Wigeon	144694
Shoveler	2245
Eider	12230
Red-crested Pochard	9
Pochard	32586
Tufted Duck	26133
Scaup	16269
Common Scoter	5898
Velvet Scoter	9
Long-tailed Duck	165
Goldeneye	6942
Smew	88
Red-breasted Merganser	805
Goosander	958
Total	483170

In addition counts from 29 countries, covering 3,570 sites and a total of 2,528,330 ducks, were received at Slimbridge for analysis. The U.S.S.R. reported another 3,405,700 ducks from a large number of sites.

G. L. ATKINSON-WILLES  
C. J. BEALE

### 1967-68

#### Goose censuses

Pink-footed Goose *Anser brachyrhynchus*. At the time of the annual November census there were 65,000 Pinkfeet in Britain. This represents a fall of about 15% in

the population since the previous year. A main cause of this drop was the poor breeding season experienced (10.8% young; average brood-size 1.3).

European White-fronted Goose *Anser albifrons albifrons*. A census was carried out on 3rd and 4th February 1968 when 10,400 Whitefronts were present in the country. This already high total rose to a record 12,000 in the period 10th to 15th February. The previous highest peak was 10,500 in 1946-47, the first winter for which we have adequate records. One of the factors which had a favourable effect on the numbers of this species in Britain this winter was the reduction in disturbance and shooting during the epidemic of foot-and-mouth disease. The geese had another in a series of good breeding seasons in 1967 (33.9% young counted in December; average brood-size 2.3).

Greenland White-fronted Goose *Anser albifrons flavirostris*. Increased numbers were present at some Scottish haunts in November 1967, though breeding success was only fair (16.0% young; average brood-size 1.7).

Greylag Goose *Anser anser*. The annual census of this species held on 4th/5th November 1967 showed a fall in numbers from last year, to 53,000. Like the Pinkfeet the main reason appeared to have been a poor breeding summer (11.0% young; average brood-size 1.7).

Barnacle Goose *Branta leucopsis*. The Spitsbergen population wintering on the Solway reached a peak of 2,700. The breeding success was better than is usual for this population (27.1% young; average brood-size 2.6).

The Greenland stock was not censused though there were 16,500 birds, or over 80% of the probable total, concentrated on Islay in early November 1967. Age-counts at this time showed that the breeding season had been a moderately good one (17.1% young; average brood-size 1.8).

Light-bellied Brent Goose *Branta bernicla hrota*. 700 was the peak count of the Spitsbergen stock made at Lindisfarne during the winter. Full results of the censuses of the Greenland population in Ireland are not yet to hand but there appears to have been a slight increase over last year.

Dark-bellied Brent Goose *Branta bernicla bernicla*. There was a peak in Britain of 16,000 on 17th February 1968, slightly higher than last winter. However the total population of this race probably declined somewhat in the same interval as shown by counts from the other wintering areas

in France and Holland. The main reason was the poor breeding success in 1967 (6.0% young).

M. A. OGILVIE

### Duck counts

Because of the foot-and-mouth epidemic, the counts for the peak months of November, December and January were seriously disrupted, especially in the Midlands. The seasonal indices should therefore be regarded with some caution. The only results which are not suspect are those for coastal species, i.e. Shelduck and Wigeon.

#### Seasonal indices, 1967-68.

Shelduck	105	Wigeon	115
Teal	42	Pochard	196
Mallard	103	Tufted Duck	93

Shelduck *Tadorna tadorna*. The population of this species has remained stable over the last three seasons at a level slightly above that of the early 1960s. As usual the numbers in the early part of the season were small, but by December, and again in February, they were recorded in very large numbers.

Teal *Anas crecca*. In general this species appears to have been slightly less numerous than in 1966-67, but the index cannot be regarded as very accurate and probably errs on the low side.

Mallard *Anas platyrhynchos*. A successful breeding season in 1967 meant that Mallard were exceptionally plentiful in September but later in the winter numbers were below those for previous years.

Wigeon *Anas penelope*. The seasonal index is the highest for five years. The species was very numerous throughout

the autumn and winter, the counts in October and January being the highest on record for the time of year.

Pochard *Aythya ferina*. The index is probably too high but would still seem well above the level in the early 1960s.

Tufted Duck *Aythya fuligula*. This species appears to have been scarcer with the counts at the beginning and end of the season being noticeably smaller than usual.

### International wildfowl census

The second international wildfowl census was held in mid-January 1968. The foot-and-mouth epidemic caused a fall in the number of returns from Britain, where 1,038 sites were counted producing the following numbers of duck:

Shelduck	33756
Pintail	8126
Teal	25932
Mallard	121437
Gadwall	280
Wigeon	151661
Shoveler	2009
Eider	9202
Pochard	23618
Tufted Duck	23600
Scaup	22808
Common Scoter	7436
Velvet Scoter	2959
Long-tailed Duck	548
Goldeneye	7008
Smew	115
Red-breasted Merganser	955
Goosander	699
Total	442149

In addition counts have already been received from 33 other countries covering 4,000 sites and a total of 5,306,983 ducks.

G. L. ATKINSON-WILLES  
C. J. BEALE

## Loch Leven, 1967

Despite the departure of Hugh Boyd to Canada in May and the necessity for the writer to act as the Warden of the National Nature Reserve pending a replacement by the Nature Conservancy, it still proved possible to carry on with the main study of breeding ducks. A temporary assistant, Gavin Dallmeyer, was employed for the four months of greatest necessity.

The work largely consisted of a repetition of last season's, but beginning earlier so that the start of the Mallard nesting season was covered. It was also possible to be more systematic, following the erec-

tion of posts dividing the main breeding area on St. Serf's Island into a grid of eighty 50 × 50 m. squares. A vegetation map of the Island was also prepared. Successive areas of the Island were searched for nests once a week, the other islands, and certain sections of the mainland, once a fortnight. The totals of nests found in this way are shown in Table I.

To check on the efficiency of the nest-searching, and to get some idea of the absolute total of nests, a post-season check was carried out on the advice of Dr. N. Morgan of the Nature Conservancy and Dr. R. Cormack of the Depart-



ment of Statistics, Edinburgh University. Fifty-five transects, each 55 yards long and 2 yards wide, were laid out in the *Deschampsia* and *Phalaris* zones on St. Serf's Island. These were minutely searched with the aid of 12 people from the Nature Conservancy, and the number of nests not found during the season were noted. The general conclusion was that our searching methods had revealed 90% of the nests present. The number of Tufted Duck nests found, also showed a good correlation with the numbers of females observed in the pre-nesting sex-ratio counts round the Loch.

Despite the intensification of effort, the number of nests known to have been deserted remained very low, about 3%. The hatching success of the Mallard was lower than last season, but that of the Tufted Duck was higher. Table II shows the nests divided according to the type of cover in which they were placed.

The successful association with the nesting gulls is to be noted. The Black-headed Gull colony had increased markedly, and a Nature Conservancy team found no less than 9,000 nests (including re-nests). This year an increase in the predation rate coincident with the fledging of the young Jackdaws was not found, though they certainly could not

be absolved from a share in the predation.

Only 120 duckling broods were observed, including many presumed re-sightings. It begins to appear that the Loch, most of whose perimeter is inhospitable to young ducks, may not be a good production area, however favourable the nesting conditions on St. Serf's. This problem will be one of the main ones to be tackled in the succeeding years.

The technique of catching sitting females by the use of a hand-net was further refined and resulted in 212 ducks of five species being ringed, or recaptured with rings put on in 1966. Tufted Ducks and Gadwall caught in this way were equipped with coloured plastic patagial tags, for recognition at a distance. A second diving-duck trap was built and operated from 1st August. The two traps secured 83 Tufted Duck, mostly juveniles, which were also given patagial tags. Another ringing effort was directed against the Mute Swans moulting on the Loch, 85 of the 96 present being caught.

The main winter's work was the detailed observation and recording of the field feeding habits of Pink-footed and Greylag Geese in a study area surrounding the Loch. This was carried forward into a second season.

Table I. Totals of ducks' nests found at Loch Leven, 1967.

Species	St. Serf's	Other islands	Mainland	Total
Mallard	557	20	32	609
Tufted	452	75	1	528
Gadwall	47	—	1	48
Wigeon	35	—	1	36
Teal	4	—	—	4
Shoveler	10	—	—	10
Shelduck	1	—	—	1
	1106	95	35	1236

Table II. Types of nesting cover used by Mallard and Tufted Duck on St. Serf's Island.

Cover type	Mallard		Tufted Duck	
	No. of Nests	Hatched (%)	No. of Nests	Hatched (%)
<i>Deschampsia</i>	296	50	117	38
<i>Phalaris</i>	62	39	125	43
<i>Salix</i>	145	40	54	50
Gullery	54	61	149	53
Pasture	—	—	7	14
	557	44	452	45

## Wild Geese at the New Grounds, 1966-67

### European White-fronted Goose *Anser albifrons albifrons*

Three birds arrived on 30th September, about the normal time, but the build-up of numbers was very slow during October and November, and there were still only 131 birds by 25th November. Influxes during December brought the flock up to 1,000 by 25th and to about 1,300 by 30th. January was almost over before 3,000 was reached, on 27th, and then a further increase in early February took the total to 4,100 on 8th. The peak was reached on 18th February when 4,200 were present. The peak was not maintained, however, and departures began almost at once. Numbers dropped rapidly with counts of 3,000 on 25th February, 2,750 on 1st March and only 500 on 5th. The last birds seen, 51 of them, departed on 10th. The peak count was about normal but the period when more than 3,000 birds were present was much shorter than usual.

For the third season running the breeding season was a good one; the proportion of young birds in the early part of the winter was 31.3% and the average brood-size was 2.6. In January it fell a little, as is usual, to 28.2%, average brood-size 2.5, and at the time of the peak count in the middle of February it had dropped further to 26.5%, average brood-size 2.4.

### Lesser White-fronted Goose *Anser erythropus*

A first-winter bird was present for some weeks, being first recorded on 29th Jan-

uary and last seen on 4th March. This was the only definite record but the presence of a second bird was suspected during February.

### Bean Goose *Anser fabalis*

A first-winter bird, probably of the western race *fabalis*, was seen on several dates between 26th January and 26th February.

### Pink-footed Goose *Anser brachyrhynchus*

Two birds were seen on 15th January, an adult and a first-winter, and what was probably the latter bird was seen many times during the rest of January, and on many dates in February.

### Dark-bellied Brent Goose *Branta bernicla bernicla*

A first-winter bird was seen almost every day between 10th and 18th February.

### Red-breasted Goose *Branta ruficollis*

Great interest was aroused among bird watchers visiting Slimbridge by the presence of two birds during the winter. A first-winter bird was first seen on 5th January and stayed until 15th. What may have been the same bird turned up a few days later among some Whitefronts wintering in Hampshire. On 4th February an adult was seen at Slimbridge and this bird stayed until the end of the month. These are the fifth and sixth records for the New Grounds.

M. A. OGILVIE

## Wild Geese at the New Grounds, 1967-68

We are publishing this winter's observations as well as those for the previous winter (above) as part of our policy for making the Current Reports section as up-to-date as possible.

### European White-fronted Goose *Anser albifrons albifrons*

This season began with the latest ever arrival of the geese at Slimbridge, yet before it ended the peak had reached an all-time high and much larger numbers had spent longer at the New Grounds than usual.

It was 18th November before the first Whitefront arrived, the previous latest date being 23rd October 1963. During the past few years there has been a gradual slowing of the autumn build-up and it

is logical that this should also show in time in late arrival dates. Once the first birds had come the pattern was much as in other years with 200 recorded on 10th December and then influxes during the rest of the month coinciding with the brief periods of cold weather. On 12th December 1,220 were counted and 2,800 on the 27th. It was during the second half of January that things really began to happen. On the 15th 4,200 were counted and then a large influx took the total to 5,450 on the 21st. Numbers stayed above 5,000 for the next six weeks, the peak rising to a massive 6,700 on 13th February. The previous highest count for the New Grounds was 5,500 in February 1966, and on that occasion and in the few other seasons when numbers have

reached 5,000 such a level has only been maintained for a very small number of days. This season a special circumstance almost certainly contributed to this unusual state of affairs. Restrictions imposed because of a disastrous foot-and-mouth epidemic (which did not, however, reach the Slimbridge area) meant that the geese were much less disturbed by farm workers and bird watchers than usual and they were able to feed extensively on fields, including some outside the reserve area, which are normally denied to them. Thus these large numbers of geese were probably able to stay because more food was available to them. In the past we have indeed hazarded a guess that availability of food might be limiting the numbers of geese spending the second half of the winter at Slimbridge.

Departures began in early March coinciding with the end of a week of cold, overcast weather. From over 5,000 on 3rd March, numbers dropped to 2,400 on 4th and dropped again to 630 on 5th. The last geese were seen on 11th March.

The geese continued a series of good breeding seasons, the proportion of young birds being very close to that in the last three years. Age-counts in December showed 33.9% young with an average brood-size of 2.3. During January there

were 30.0% young birds on the 12th, average brood-size 2.5, and 27.5% on the 26th, average brood-size 2.1. The only satisfactory sample count in February, on the 11th, showed 27.8% young birds, average brood-size 1.9.

Lesser White-fronted Goose *Anser erythropus*

An adult was first seen on 3rd February and on many dates thereafter until the end of the month.

Bean Goose *Anser fabalis*

There was a single record of an adult 'yellow-billed' bird on 26th January.

Pink-footed Goose *Anser brachyrhynchus*

Five Pinkfeet were seen on 24th January and seven on 26th. These were together in a little bunch and consisted of a pair with a single young and two other pairs. They were all seen on several dates during February, the last time on 24th.

Barnacle Goose *Branta leucopsis*

A single adult was present from 14th January until at least 27th February.

Dark-bellied Brent Goose *Branta bernicla bernicla*

A first-winter bird was first seen on 28th December and was last recorded on 28th February.

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## The Bewick's Swans, 1967-68

The fifth successive year of the Bewick's Swan study at Slimbridge started somewhat later than usual. Indeed there was some anxiety as to whether any swans would be on view at our 21st Birthday celebrations. However 9th November saw the arrival of three birds hatched in 1966. They were first seen about half-past three in the afternoon flying over the Enclosures. They disappeared in the direction of the Moors, an area of wet fields a mile away and were found grazing there at four o'clock. Within another half-hour however, they were back over the Trust and came into land on Swan Lake. As it was about tea-time they were promptly named Jammy, Honey and Butter.

The next day brought some old friends, a breeding pair, Kon and Tiki. This year they had no young, our first indication that it had been a poor breeding season. There were, however, two, and later three, second-year birds with them, dis-

tinguished from the full adult by the odd grey feather, particularly on the head and neck. These were almost certainly their young from the previous year which had either stayed with their parents right through the summer, or, more probably, had joined up with them again before or during the autumn migration. Suitable Polynesian names were chosen, and Kama, Kura and Ku remained with Kon and Tiki throughout the winter. Pineo and Pinafore also arrived on 10th November. They were hatched in 1965 as young of Pink and Rebecca.

The next arrivals were 16 swans on 17th November. These included Rebecca with a single youngster, but, alas, no Pink. This pair had been among the original 24 birds to be identified by their face patterns in February 1964. In the three succeeding winters they had returned to Slimbridge bringing first 2, then 3, and last winter 4 young with them. The

young of the previous years, together with their mates, often associated with their parents at Slimbridge and at times there were 15 swans in the family party. Pink never turned up during this winter and it must be assumed that he is dead. Although there are cases of swans missing a winter at Slimbridge and then returning it is unlikely that this will happen with Pink as they concerned immature and unpaired birds. There were four cases this winter, all first recorded in 1965-66, and missing 1966-67. One of these, Sparrow, was caught and ringed as a cygnet in 1965-66 and thus it was possible to check its identity this year although the bill pattern had changed from its juvenile pink and grey to adult yellow and black. Sparrow is still easily the smallest Bewick's Swan that has been seen at Slimbridge, and its name refers to this feature not to any resemblance to the Controller.

It has been suspected that the bill patterns can change slightly even when they have become yellow and black, but a surprisingly large change occurred during this winter in one bird. James, a second-year swan, arrived on 26th November and, fortunately as it turned out, was caught and ringed two days later. At that date he was a 'yellowneb', the yellow continuous across the top of the bill, with the patches on either side. During the winter the yellow on the top of the bill was seen to be turning white and for a time it looked just as if he had a 'frostbitten' nose. However, gradually the white disappeared and was replaced by black. So James then became a 'darky' with black running up the front of the bill to the feathering between the eyes. The change took about three months, its cause remaining a complete mystery.

Last winter some metal leg-rings were tried out which were stamped with large figures which could be read at a distance and thus help to check the identity of each swan, especially young birds. They were particularly useful when a swan was up-ending for food and the bill was out of sight. Thirty-three swans were marked with these rings in 1966-67 and several of the birds returned. This year rather better rings were developed, of plastic instead of metal and with even larger numerals, half an inch high, engraved in a contrasting colour. In addition it is possible to add a colour code to indicate the age of the swan. Only twenty birds were caught and ringed in this way during the winter, but the rings proved extremely visible and cause the birds no discomfort. (Plate XVI a, facing p. 157).

Until this winter all the swans ringed caught themselves by landing in the sidepens and other confined spaces. There were two probable reasons why fewer birds were caught in this manner in 1967-68, some of the trees which obstructed their flight paths were removed and there were rather few young birds. These are less good flyers than adults, though there are some duffers amongst the latter. One, Rebel, caught on 19th November 1967 was recaptured on 13th January 1968, both times making false landings. In the interval it had increased its weight from 5,019 gm. to 7,357 gm., a tribute to our feeding, at least. Deliberate attempts were made this winter to catch the swans as they flew out of the pen at night and after two abortive attempts six were caught at the third try. Visitors to the Trust during the winter may have seen some curious constructions in the back of the Rushy Pen. Looking like ballistas or other antique military engines, they were actually three pivoted poles, 45 feet high, which could be raised to the vertical with a large-mesh flight net suspended between them. The birds do not tangle in the net but drop down on to a further net spread horizontally underneath to break their fall. The apparatus can only be used on very dark nights with a light wind from one general direction. Reflection from the floodlights also caused difficulties. However it is a promising technique. There is a lot more that could be learnt about the swans if they are marked so as to be recognisable at greater distances than is possible with their bill patterns. For example it should be possible to identify the birds when they visit other resorts where they do not approach as close to the observer as at Slimbridge.

Bewick's Swans from Slimbridge were first recognised elsewhere when six known birds were seen about 16 miles north on floodwater beside the River Severn on 30th December. It seems that some birds were commuting regularly between the two places.

The total number of individual Bewick's Swans seen this winter was 344, very slightly more than last winter. The highest total on Swan Lake on any one day was 199, compared with 222. In each of the past winters the numbers have successively doubled, but this halt to the increase was almost certainly due to the very poor breeding season. Only 26 young birds appeared during the winter, 7.5% of the total. This compares with about 30% in each of the two previous winters. Not only did rather few pairs of adults

bring young with them, but the size of the families was small as well, the largest only having three. The swans breed in Arctic Russia where weather conditions can cause a partial or even complete breeding failure in some years. A period of very bad weather when the adults are laying or especially when the cygnets are just hatched, can cause very heavy mortality and this is probably what happened in 1967. By contrast the European White-fronted Geese wintering at Slimbridge had a good breeding season. We know they breed around Novaya Zemlya, and thus it is probable that the Bewick's Swans' breeding grounds are elsewhere, perhaps further east on the Yamal peninsula. The Brent Geese coming from that

region also had a poor season. Eventually ringing recoveries will give us the clue and perhaps it will even be possible to see and identify 'our' birds at the nest.

Departures for Russia started on 2nd March when a spell of fine weather followed a week of rain and high winds. Thirty birds went that day and further 86 the next. More left on 9th but, curiously, four birds arrived that day, and stayed a little while. It is probable that they had wintered further west and were using Slimbridge as a staging post on their return migration. The last bird to leave was a cygnet which had come by itself late in the winter and stayed on after all the other swans had departed. It finally left on 17th April.

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### Breeding results 1967: Slimbridge Collection

	Date of first egg	Incubated by bantams			Incubated by parents		Total reared
		eggs	hatched	reared	Hatched and reared artificially	by parents	
Eyton's Whistling Duck		10					
Fulvous Whistling Duck	10.3	86	25	23			23
Cuban Whistling Duck	20.6	11	0				
White-faced Whistling Duck	24.5	20	17	17			17
N. Red-billed Whistling Duck	15.5	13	11	11			11
S. Red-billed Whistling Duck	20.3	31	20	19			19
Black Swan	9.2					3	3
Black-necked Swan	3.2					3	3
Bewick's Swan	9.5					2	2
Trumpeter Swan	6.4	13	8	8		1	9
Swan Goose	30.3	6	3	3		2	5
Western Bean Goose	27.4	7	4	4			4
Russian Bean Goose	27.4	7	2	1			1
Pink-footed Goose	23.4	8	5	4			4
European White-fronted Goose	16.5	6	1	1			1
Greenland White-fronted Goose	23.4	16	8	5			5
Lesser White-fronted Goose	21.4	23	12	11			11
Western Greylag Goose	2.4					14	14
Eastern Greylag Goose	16.3						
Bar-headed Goose	21.4	22	4	3		2	5
Emperor Goose	21.4	34	17	14			14
Lesser and Blue Snow Goose	28.4					14	14
Greater Snow Goose	26.4	6	4	4		5	9
Atlantic Canada Goose	20.3					2	2
Moffitt's Canada Goose	28.3	9	3	1			1
Giant Canada Goose	25.3					9	9
Taverner's Canada Goose	20.4		1	0		2	2
Cackling Canada Goose	27.5	4	0				
Hawaiian Goose	11.2	123	40	35			35
Barnacle Goose	27.4					27	27
Black Brant	19.5	9	6	3			3
Ruddy Shelduck	4.5	9	2	0			
Cape Shelduck	18.3	5	4	3			3
Egyptian Goose	16.2					7	7
Abyssinian Blue-winged Goose	28.4	4					
Andean Goose	16.5					9	9
Ashy-headed Goose	4.4	12	2	1		2	3
Ruddy-headed Goose	18.4	4	4	3		4	7
Lesser Magellan Goose	2.4	10	9	5		2	7
Greater Magellan Goose	21.4	5	1	1			1
Cereopsis Goose	3.1					1	1
Patagonian Crested Duck	18.2	5	5	5		9	14

	Date of first egg	Incubated by bantams			Incubated by parents Hatched and reared		Total reared
		eggs	hatched	reared	artificially	by parents	
Andean Crested Duck	12.3	3	1	1			1
Marbled Teal	21.4	13	12	8	12		20
Bronze-winged Duck	3.3	13	1	1			1
Cape Teal	12.3				10	8	18
Hottentot Teal	8.7	6	6	6			6
Versicolor Teal	25.4	19	8	2			2
Puna Teal	12.5	8	0				
Bahama Pintail	20.5	20	6	6	24		30
Chilean Pintail	8.4				20		20
Northern Pintail					10	5	15
Kerguelen Pintail	20.4	10	3	3			3
Chilean Teal	15.4				15	2	17
Falcated Teal	22.5	31	2	1			1
Australian Grey Teal	23.5	8	1	1			1
Chestnut-breasted Teal	20.2					6	6
New Zealand Brown Teal	12.2					5	5
Greenland Mallard	1.7	6	0				
Hawaiian Duck	27.4						
Laysan Teal	25.4	23	19	17			17
Florida Duck	12.5	7	7	1			1
North American Black Duck		4	0				
Indian Spotbill	19.5	9	1	1			1
Chinese Spotbill	19.5				1		1
New Zealand Grey Duck	25.3				12		12
Philippine Duck	10.5	34	19	18			18
African Yellowbill	20.2				15		15
Abyssinian Yellowbill	30.3				12		12
African Black Duck	30.3	4	2	0			
Gadwall					25	20	45
European Wigeon	25.5	10	4	4	6		10
American Wigeon	25.5				8		8
Chiloe Wigeon	5.5	42	26	20	2		22
Blue-winged Teal	12.5	33	16	10			10
N. Cinnamon Teal	29.5	6	1	1			1
Cape Shoveler	22.4	16	9	2			2
New Zealand Shoveler	25.4	7	3	2			2
Common Shoveler	30.4	10	0				
Ringed Teal	18.4	37	16	14		3	17
European Eider	18.5	11	6	5			5
King Eider	4.6	4	3	2			2
Red-crested Pochard	25.3	25	21	20			20
Rosy-bill	15.5	13	3	3	4		7
African Pochard	3.3	4	2	2			2
European Pochard	12.5	14	10	8			8
Redhead	26.4	18	9	8			8
Common White-eye	15.4				6		6
Baer's Pochard	22.6	8	8	7			7
Australian White-eye	12.3				3		3
New Zealand Scaup	5.6				11		11
Lesser Scaup	11.6				5		5
European Greater Scaup	25.6	9	6	4			4
Brazilian Teal	23.5						
Mandarin Duck	6.4				30	2	32
North American Wood Duck	12.3				61	4	65
Comb Duck	15.6	32	27	16			16
Hartlaub's Duck	12.7					6	6
Muscovy Duck	15.5					8	8
Spur-winged Goose	4.4	8	0				
European Goldeneye	20.4	3	1	1			1
American Goldeneye	28.4						
Smew	18.5	7	1	0			
Hooded Merganser							
Red-breasted Merganser	1.6	6	1	0			
North American Ruddy Duck	28.5	6	4	1		15	16
African White-backed Duck	6.6	10	1	0			
Crested Screamer						2	2

## Breeding Results 1967: Peakirk Collection

	<i>Date of first egg</i>	<i>Eggs incubated</i>	<i>Eggs hatched</i>	<i>Young reared</i>
Black Swan	23.2	5	5	4
Black-necked Swan	7.2	10	4	2
Swan Goose	7.4	27	8	5
Pink-footed Goose	1.5	10	4	3
Greenland White-fronted Goose	7.5	6	0	
Lesser White-fronted Goose	11.5	3	1	0
Western Greylag Goose	2.4	18	17	12
Emperor Goose	13.6	3	0	
Lesser Snow Goose (Blue)	26.4	5	3	3
Taverner's Canada Goose	6.5	5	1	1
Cackling Canada Goose	22.4	10	4	3
Hawaiian Goose	18.3	1	0	
Barnacle Goose	3.5	11	0	
Red-breasted Goose	12.6	5	4	4
Ruddy Shelduck	25.4	6	2	2
Cape Shelduck	11.3	11	3	1
Common Shelduck	28.4	11	5	5
Greater Magellan Goose	3.4	16	11	9
Patagonian Crested Duck	27.3	11	8	3
Andean Crested Duck	16.4	10	1	1
Marbled Teal	17.5	40	35	26
Cape Teal	5.4	14	14	11
Versicolor Teal	19.4	6	2	0
Bahama Pintail	14.5	60	30	17
Chilean Pintail	6.4	19	19	10
Northern Pintail	24.4	24	4	4
Chilean Teal	28.3	19	14	11
Falcated Teal	7.6	8	5	0
Chestnut-breasted Teal	16.4	22	7	7
Laysan Teal	24.4	24	14	11
North American Black Duck	17.5	8	5	4
Chinese Spotbill	9.5	14	4	3
African Yellowbill	24.5	10	4	3
African Black Duck	6.4	10	1	1
Gadwall	17.5	21	15	10
European Wigeon	29.4	50	27	20
American Wigeon	15.6	9	5	3
Common Shoveler	11.5	24	4	0
Ringed Teal	8.6	5	0	
European Eider	27.5	4	0	
Red-crested Pochard	4.4	44	13	8
Rosy-bill	31.5	11	0	
African Pochard	23.5	6	0	
European Pochard	9.5	6	2	1
Common White-eye	5.5	26	18	9
Baer's Pochard	11.6	9	6	3
Australian White-eye	15.5	22	17	8
New Zealand Scaup	12.5	15	8	7
Tufted Duck	11.5	39	27	22
European Greater Scaup	15.6	4	3	3
Brazilian Teal	21.4	17	5	4
Mandarin Duck	8.4	14	10	6
North American Wood Duck	25.3	45	15	1
North American Ruddy Duck	25.5	42	17	8

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