

Research, conservation and education

The Wildfowl Trust's contribution in 1978

The activities of the Trust in these fields are reported to its Members in the *Annual Report* and in the twice-yearly magazine *Wildfowl News*. In the following pages are presented brief accounts of the wildfowl counts and censuses organized from Slimbridge, of the ringing activities of the Trust and its collaborators, of the wild birds observed on its refuges, and of its avicultural achievements.

Reports on research findings are published in *Wildfowl* (see pp. 20, 72, 118, 135, 142) and in appropriate specialist journals. These papers are listed on p. 176 and give an idea of the range of subjects covered. A further 38 publications were in press, while 17 documents were given limited circulation in the cause of our conservation activities.

Besides the maintenance of our own

refuges, our findings on wetland management and population fluctuations and distribution were widely disseminated to assist conservation of wildfowl in Britain and overseas. The successful avicultural programme played a part in maintaining the numbers of rare and endangered species and in reducing the drain on wild populations.

The educational impact of the Trust was felt at all levels, in the widest sense on our 552,518 visitors, and more directly on the 83,000 school children that came in organized parties to be guided by our educational service. University contacts were expanded through undergraduate courses and through post-graduate studies, five higher degrees being awarded during the year.

G.V.T.M.

Wildfowl censuses and counts in Britain and Ireland, 1978–1979

Goose censuses

The summer weather across the arctic was rather variable in 1978, producing good breeding in the USSR and Svalbard, only moderate in Iceland, and quite poor in both

East and West Greenland and in arctic Canada.

The European Whitefronts and Dark-bellied Brent Geese from the USSR both bred well. The total of the former species in Britain was boosted by hard weather

Table. Peak count and breeding success of goose populations in Britain and Ireland, 1978–1979.

	Peak count	Month	% young	Av. brood size
Pink-footed Goose <i>Anser brachyrhynchus</i>	78,000	Nov.	18.4	2.3
European White-fronted Goose <i>Anser albifrons albifrons</i>	9,500	Jan.	34.0	2.6
Greenland White-fronted Goose <i>Anser albifrons flavirostris</i>	—	—	9.7	2.9
Greylag Goose <i>Anser anser</i>	76,000	Nov.	20.6	2.4
Barnacle Goose <i>Branta leucopsis</i> —Svalbard	8,800	Oct.	26.0	2.1
—Greenland	—	—	12.0	2.0
Light-bellied Brent Goose <i>Branta bernicla hrota</i> —Svalbard	1,800	Jan.	30.0	—
—Greenland	7,000	Jan.	8.0	—
Dark-bellied Brent Goose <i>Branta bernicla bernicla</i>	63,000	Jan.	35.0	2.8

movements from the continent but these were disappointing in view of the massive numbers normally wintering there and the severity of the conditions. It seems as if most birds moved south into France rather than west into Britain. The Dark-bellied Brent Geese reached new record totals, both in Britain and in north-west Europe as a whole (142,000 in January 1979).

The Svalbard Barnacle Geese came back well after their nearly complete breeding failure in 1978 and reached yet another record total. The Light-bellied Brent Geese from the same area also bred well and the cold weather pushed more than usual across from Denmark to their Lindisfarne, Northumberland, haunt.

The breeding success of both the Pink-footed Goose and the Greylag in Iceland was

close to average and both species increased, the latter to a new high, moving it nearer to becoming Britain's most numerous goose.

The East Greenland Barnacle Geese had a poor year, and while there was no complete census, autumn numbers on their principal haunt of Islay were little changed from the previous winter, while by March they had dropped by 5,000 to 17,000. The Greenland Whitefronts on the same island were also suffering from a poor breeding season and numbers were below those of recent years.

The Light-bellied Brent Geese from northern Greenland and eastern arctic Canada had a poor season and the mid-winter count was over 2,000 down from the previous winter.

M.A.O.

Duck counts

Seasonal indices 1978–1979 (1959–1960 = 100)

(Last season's figures in brackets)

Mallard	104 (92)
Teal	94 (70)
Wigeon	137 (136)
Pochard	110 (154)
Tufted Duck	129 (126)
Shelduck	233 (260)

Mallard *Anas platyrhynchos*. After a slow autumn build up, the peak numbers were reached in December. There was then a sharp fall-off, except in eastern areas.

Teal *Anas crecca*. The pattern was similar to Mallard. The December counts were the highest for 17 years. The largest gatherings were on the Mersey Estuary (7,080, December), and at Martin Mere (4,000, November and December).

Wigeon *Anas penelope*. The returns were low almost everywhere, until the cold spell in January, when there was a huge influx in the south. Many sites held record concentrations, notably two in Essex—Hamford Water (21,000) and Abberton Reservoir (11,570). In the north very few were present, but elsewhere the large numbers remained until the cold weather abated in late February. On the Ouse Washes, the high water-level kept the numbers down to a maximum of 15,900 in February, compared with the usual 25–30,000.

Pochard *Aythya ferina*. In the autumn the counts were high in most areas, but in January and February they were severely affected by the ice on inland waters. Some birds moved on to estuaries, such as Teesmouth and the Firth of Forth, and others to the larger inland localities, such as the Ouse Washes and Staines Reservoir, which had plentiful open water.

Tufted Duck *Aythya fuligula*. This species was similarly affected by the freezing conditions. In Scotland, after some very good early season returns, very few were found in January and February; further south, by February, they were large numbers at many normally unfavoured haunts which were ice-free.

Shelduck *Tadorna tadorna*. From September to December the counts were about normal, but in January there was an unusually big increase everywhere. 10,000 were counted at Hamford Water in January, and the flock on the Mersey Estuary reached 7,000 in February.

During the hard weather several other species were unusually abundant, notably Goosander and Smew.

International Wildfowl Censuses, 1979.

The 13th international mid-winter census was held in January, and the 4th spring census in March.

G. L. Atkinson-Willes
D. G. Salmon

Wildfowl ringing in Britain, 1978

The number of duck ringed fell by just over 1,000 compared with 1977, with the traditional duck decoys at Borough Fen, Nacton, and Slimbridge, all having very disappointing seasons. Various factors can be blamed, including changing ground water levels, altered patterns of farming activity, and increased numbers of disturbance-free waters. Fortunately other methods of catching ducks, including the cage traps at Abberton Reservoir and Deeping Lake, and the 'pipe' at Slimbridge, did not suffer from the same failings, though a warm open autumn was not helpful. An experiment with good promise for the future was the capture at Welney of 20 Wigeon and 2 Teal using cannon nets. The cage trapping started on gravel pits at Blunham, Bedfordshire, by Mr

A. Zwetsloot also has good prospects. Diving ducks look like providing the bulk of his catch. Useful numbers of Teal were caught in the Abbotsbury Decoy.

A single catch of 372 Barnacle Geese at Caerlaverock in October (one of the largest goose catches made with rocket nets), provided much valuable data including recaptures of 60 birds previously marked in Scotland and in Svalbard.

A total of 84 Bewick's Swans were ringed in two catches at Slimbridge, 230 in all being dye-marked for resightings away from Slimbridge, and 181 Mute Swans were ringed as part of the study of these birds in Dorset. Substantial numbers were also ringed in other, amateur studies.

M.A.O.

Table. Ducks ringed by the Wildfowl Trust, 1978

	Abberton	Nacton	Borough Fen	Deeping Lake	Slimbridge	Others	Total
Shelduck	13						13
Wigeon	82	30		1		22	135
Gadwall	105	2	4	5	80	4	200
Teal	290	105	119	14	31	165	724
Mallard	1,153	299	96	572	321	31	2,454
Pintail		55		3	79	3	140
Shoveler	29	1	1		29		60
Pochard	100			10	26	5	141
Tufted Duck	318	1		71	22	7	439
Scaup	3						3
Totals	2,093	493	220	676	588	219	4,289

Slimbridge: the wild geese, 1978-1979

European White-fronted Goose *Anser albifrons albifrons*

The first, 2 adults and 2 young, arrived on 11th October and although several more joined this party, numbers did not exceed 100 until 28th November. During the next two weeks several influxes raised the number to 1,200 on 9th December. This number was considerably less than at the same time in 1977 and the winter showed little promise. However, by the 26th December the numbers had reached 2,000.

Heavy snow and bitter cold during January dispersed the geese very widely making counts difficult and many birds went as far afield as Bridgewater Bay, but the cold

eventually drove birds in from the Netherlands and the winter's peak of 5,100 was reached on 11th January, the highest for some years. Sadly the snow so reduced the food availability that the birds were forced to disperse even more and viewing was often disappointing. This trend continued through February and after a few days re-grouping on the Dumbles and Tack Piece the departures began with 2,500 on 4th March, 300 on 6th, the last 20 leaving on 12th.

As usual a number of pricked birds remained for some time with a single goose still here in late April.

Breeding success was again quite good with 34% young and a brood size of 2.6.

Lesser White-fronted Goose *Anser erythropus*

A single adult bird, with a distinct eye ring, was seen on 30th December and then an adult and a juvenile on 4th March.

Bean Goose *Anser fabalis*

A single bird of indeterminate race was seen in late January and several times through February. It probably departed with the main exodus of Whitefronts in early March.

Pink-footed Goose *Anser brachyrhynchus*

A single bird was seen on 23rd December and occasionally afterwards. Ten birds seen in March were feral.

Brent Goose *Branta bernicla*

Three Dark-bellied Brent arrived on 23rd December and the following day 6 were seen. Thereafter only 3 or 4 were seen for some days, dwindling to a single during British population of this species.

Karl Lane

Slimbridge: the wild swans, 1978–1979

Although the first Bewick's Swans arrived at Welney, Norfolk, on 1st October this winter, the earliest date on record, none reached Slimbridge until the 20th, a more usual date. The nine swans seen that day included Dougie and Estralita, who are the only swans to have been identified as individuals on migration as far away as Estonia, in April 1978. They were then accompanied by their 3 cygnets of the year, who later rejoined their parents at Slimbridge. This year they had just one cygnet. Also with them was their cygnet of 1974–1975, Dougal. Two years ago, in his third year, Dougal's presence was accepted by his parents. This year he was frequently chased off by the female.

The population increased steadily throughout November and December, and numbers on Swan Lake gradually rose to 204 by 30th November. Most of the early arrivals stayed at Slimbridge throughout the winter. By the end of December 417 swans had been recorded, and around 300 swans were visiting Swan Lake regularly.

In recent mild winters the swans have started leaving Slimbridge in January, returning eastwards as far as the Netherlands or even Germany. However, the first two months of 1979 were not at all conducive to swan migration, as Britain and western Europe underwent the worst weather conditions since 1962–1963. The night of 30th December brought snow, strong north-easterly winds and a minimum temperature of -6°C . The following night temperatures reached -14°C and Swan Lake froze. The swans helped maintain an area of open water, gaining some shelter from the north-east winds by keeping near a shrub-covered

bank. They initially appeared apprehensive with this change in their environment and were reluctant to walk on to the ice to feed. However, as they became accustomed to the new situation they grew bolder. Within a couple of days they were again feeding confidently in front of the Swan Observatory and Studio windows.

As well as inhibiting the departure of the flock already at Slimbridge, the harsh weather conditions brought many new swans. Birds wintering in the Netherlands or Germany moved west into Britain in search of snow-free grazing grounds. Many came to the Trust's refuges at Welney and Slimbridge, where their diet is regularly supplemented with grain. Between 1st and 16th January the number of birds recorded rose from 417 to 633. On 14th January, 610 swans were counted in the Rushy Pen, 200 more than the previous record set in 1971. As the maximum number of swans had stabilized between 200 and 300 in recent winters, we had begun to assume that the lake had reached its saturation level. It now seems that in times of crisis, such as a reduction in the natural food supplies, we can temporarily cater for double this number.

Comprehensive daily recording of individual swans was continued this winter. Most of the new birds were identified and their bill patterns drawn. This was not always easy, particularly in early January when large numbers of new birds arrived in a short space of time. In this situation noting the families and paired birds was given priority as they return in higher proportions than single birds.

By the end of the season, 721 different

swans had been registered of which just 63 (8.7%) were cygnets; evidence of a very poor breeding season in 1978. Of the total, excluding cygnets, 212 (32%) had been recorded in previous winters as adults or yearlings. This is the lowest percentage of birds with experience of Slimbridge since 1968–1969, when the annual numbers were still increasing. The figures this year are similarly due to a large influx of new swans, probably birds which prefer to winter in the Netherlands or Germany in milder years. There was no decrease in the actual number of returning birds, in fact the figure this year is the highest since 1973–1974.

Most of the regular visitors to Slimbridge arrived before 31st December; 185 of the 212 recorded (87%) had been identified in the Rushy Pen by this date. Just 24 of the 216 arrivals in the first two weeks of January had a history at Slimbridge and many of these had not been seen here for some years. One swan, Neptune, returned for the first time since 1965–1966. It seems likely that he has spent recent winters at continental sites. Now that so many new birds have learnt about Slimbridge it will be interesting to see if they continue wintering here in the future.

Last summer a number of modifications were made to the swan 'pipe', including raising the height of the entrance, and putting plastic mesh netting round the catching up pens to prevent minor abrasions. Two particularly successful swan catches were made this season, on 18th December (a record 145), and on 16th January (130 birds). 230 individuals, including 18 cygnets, were weighed, photographed, and had their tails dyed yellow. 163 swans were caught for the first time during the winter, bringing the total number ringed since 1960–1961 to 968. Although the swan pipe appears capable of holding an even greater number of birds, we have now reached the maximum we can safely process at one catch without causing undue stress to the swans.

With the brighter, warmer weather at the beginning of February, the swans began to leave Slimbridge. Numbers fell from 550 on 1st February to 223 by the 11th. This rapid departure may be partially due to the high density of birds in the Rushy Pen. However, in the middle of the month, the weather deteriorated, strong north-easterly gales swept across the country and heavy snow fell in the east. The swans flooded back to Slimbridge; 540 were counted on 19th February. Most of these arrivals had already been seen here this winter.

When the weather finally turned mild at

the end of February, the bulk of the swans quickly left; only 14 were counted on 3rd March. The stragglers spent most of their time grazing on the Dumbles. They did not visit the Rushy Pen after 28th February, though 7 had spent much of the winter there. The last of this group left on 7th March.

As the swans started their migration, reports of yellow-tailed birds quickly came in from eastern England and the continent. 22 dyed birds arrived at Welney on 22nd February having left Slimbridge 2 days previously. 23 were sighted at Cropston reservoir, Leicestershire, on the 21st, though unfortunately none of their rings could be read. Scattered observations of yellow-tailed birds were also made in Warwickshire, Yorkshire, East Anglia and Kent, at around this time.

44 dyed birds were reported at different sites in the Netherlands between 24th February and 30th March. Only 5 rings were read so we cannot determine if any of these were resightings. 21 yellow-tailed and 12 non-dyed birds were identified in Schleswig Holstein, West Germany, between 11th March and 8th April. Most unusually, an adult bird carrying a yellow darvic ring was reported among the small population wintering in the Camargue, southern France. This is the first Slimbridge swan to be seen on the Mediterranean coast.

On 24th March, 5 swans were again observed at Slimbridge. They were the season's first arrivals, Dougie and Estralita with their 1978 cygnet, last seen here on 22nd February. Ermintrude, one of their 1977 offspring, and an unknown bird. All 5 swans spent the first week feeding and resting in the Rushy Pen as if recovering from a long flight. Unfortunately we had not received any sightings of them during their absence. After 6 days recuperation they started flying out during the day, returning for the feeds, and to roost. Having restored their energy supplies they finally left at 1945 on 4th April. Although swans stayed at Slimbridge until 12th April in 1968–1969, never before have they left and then returned so late in the season.

Eileen C. Rees

Welney Wildfowl Refuge, 1978

The first five months of 1978 provided probably the worst conditions the Refuge has experienced since it opened in 1970. Continuously high water level throughout January and February was followed by

several cold snaps in March. These culminated in April in severe frosts and heavy snowfall, followed by yet another high flood in May.

High water levels in winter seem to have become a regular feature in the last few years, an unfortunate tendency as it inevitably leads to disappointingly low numbers of birds on the Refuge. With the water from bank to bank, grazing and dabbling ducks are forced on to higher ground for food, and the swans find it difficult to feed if the water gets too deep, so they fly out to graze on the surrounding farmland.

Peak numbers of the different species in the early part of the year included 1,900 Bewick's Swans and 72 Whoopers, 12,700 Wigeon, 3,000 Mallard, 1,000 Teal, 850 Pintail, 540 Shoveler and 500 Pochard. The Wigeon peak was particularly low and compares with 35,000 in the previous winter. Among other species seen during the period were 14 European Whitefronts and a single Pinkfoot, up to 280 Ruff, and over 2,000 Golden Plover. Single Marsh and Hen Harriers were also seen. A male Blue-winged Teal provided interest in early March.

The May floods caused havoc among the nesting birds, but some early duck broods were successfully reared and many that were

flooded out managed to have a second attempt after the water had receded. Broods of Mallard, Shoveler and Tufted Duck were good, but neither Gadwall nor Shelduck had a successful season. Three Black-tailed Godwit nests were destroyed in the floods but in the end five pairs succeeded in rearing young, one pair leaving the Washes altogether in favour of a wheat field behind the Warden's house. Many of the wintering Ruff stayed on into the spring but the weather and the floods were apparently too much for them, and no display was seen. Black Terns appeared during April and built up to 11 by mid-May but again there was no attempt at nesting.

The autumn began mild and dry and a European Crane was seen for two weeks during September. Useful numbers of ducks appeared on the pools, with October peaks of 3,000 Mallard and 1,500 Teal. The first Bewick's arrived on the record early date of 1st October but even this was 12 days after the first Whooper. Some flooding in November and December produced quite good conditions by the end of the year, with Wigeon building up to 11,000, Bewick's up to 1,100, and Whoopers to 90. A foretaste of the hard weather to come produced a Single Barnacle Goose with four Whitefronts on December 30th.

M.A.O.

Eastpark Wildfowl Refuge, Caerlaverock, 1978-79

Barnacle Goose

The autumn 1978 arrival of the Barnacle Geese at Eastpark was one of the most spectacular seen. The first birds came in on 24th September, and within 19 days had built up to a record 8,800, an increase of 2,000 over the previous winter. A normal arrival period lasts 35 to 45 days. The rapid southerly migration this year in about half the normal time was caused by an early onset of snow on the nesting grounds in Svalbard.

The 1978 nesting season had been a very good one, with not less than 26% young birds and an average brood size of 2.1. The two oldest white birds returned, but the third and youngest, hatched in 1975, failed to appear. Both the former are mated to normal plumaged birds and one of these mixed pairs

was accompanied by a single slightly pale gosling.

The 1978-79 winter was the coldest in Scotland for 16 years, with snow and severe frost from late December until mid March. The Barnacle Geese responded by spending much more time than normal ranging around their limited Solway feeding grounds seeking more favourable conditions. Numbers on the Refuge fluctuated daily from very few to the full complement and flocks appeared at all their known haunts and one or two new places as well, on a most irregular basis. The normal spring movement to Rockcliffe in late February was replaced by much earlier flights there by the majority of the geese, from the New Year onwards. In March up to

3,000 came back to the Refuge and in April a maximum of 550 were present. Persistent northerly winds delayed the spring migration and by 1st May some 400 geese were still at Eastpark. The last winter stragglers were seen on the 18th, a flock of 60. Daily observations at Rockcliffe indicated that the majority of the geese departed between 18th April and 5th May.

Pink-footed Goose

The first Pinkfeet arrived on 18th September and built up to a flock of 1,400 by the end of the month. Numbers fluctuated widely on the Blackshaw and Priestsides roosts as birds moved through the inner Solway in response to severe conditions elsewhere in Britain. Several thousand geese one morning was followed quite often by very few birds the next. Peak numbers reached 6,000 by late January and slowly declined in February and March to less than 300. It is in this later period that the biggest flocks are normally seen but this year was an exception. During April the pattern was more usual with between 800 and 1,400 present. In early May the flock dwindled rapidly and the last few geese, a flock of 26, were viewed on 19th May.

Greylag Goose

This species was less numerous than in previous winters on the estuary roosts with

no more than 180 counted for most of the time. The one exception was a period in December when 500–600 flighted daily up to 19 km inland to feed in an area north of Dumfries.

Other geese

During the winter the following were present on the Refuge and seen in the general area: 2 European and up to 7 Greenland Whitefronts, 2 Lesser Whitefronts, 2 Western Bean Geese, and a single Light-bellied Brent.

Swans

The first Whooper Swans arrived on 1st October and by late November a record 77 were present. All had departed by 15th April. Mid-October saw the first Bewick's arriving and they built up to a record for this species of 47.

Ducks

Duck numbers were low all winter. Even the autumn Pintail flock did not exceed 400 on the Refuge though at least another 1,000 fed elsewhere in the locality. A maximum of 600 Teal and 800 Wigeon were counted, with not more than 300–400 Mallard.

Colin Campbell

Martin Mere Wildfowl Refuge, 1978

Frequent visits by good numbers of Pinkfeet, including several roosts of more than 2,000 and one of over 7,000 birds, continued until mid-March when at the same as the five regular Bewick's Swans, they left for their breeding grounds in the arctic. There were still plenty of duck to be seen at the beginning of the year, 3,000 Teal, 1,000+ Mallard and 950 Wigeon, but by the end of March most of these had gone as well.

By April the summer migrants, Swallows, Swifts, Martins, etc., started to arrive and by May the passage was in full swing, providing Common, Green and Wood Sandpipers, 23 Black-tailed Godwits, Common and Black Tern (the former courtship feeding and displaying), also three immature Little Gulls, Ringed and Little Ringed Plover, Sanderling

and a male Marsh Harrier. The highlight of May was the unexpected arrival—and first record at Martin Mere—of a Spoonbill, in full breeding plumage, with crest, yellow chin and foreneck.

Birds that stayed to breed included three pairs of Redshank, two pairs of Oystercatcher, Pied Wagtail, Sedge Warbler, Reed Bunting, Meadow Pipit, and, of the waterfowl, Mallard, Gadwall, Shelduck, Shoveler, Tufted Duck, and two pairs of Little Grebe. A pair of Great Crested Grebe that arrived on 29th March and stayed for a week unfortunately decided against nesting.

The condition of the turf on the wild marsh was improved further during the summer, by harrowing, fertilizing and grazing. Two more hides were constructed,

overlooking the Mere and the Carum Field.

As the last summer visitors were leaving, the Pink-footed Geese were arriving; the first ones touching down on 17th September. Although peak numbers on the Reserve were lower than the previous winter (maximum 2,400 in November), their visits were far more frequent and, up to the end of January, they could be seen on the Reserve most days. On many occasions, over a thousand birds have roosted on the Plover Field or used Vinson's as a drinking and bathing station.

Duck numbers were good until the freeze started at the beginning of January, with 4,000+ Teal, 2,000 Pintail, 1,400 Mallard, 680 Wigeon, 86 Shoveler and 124 Pochard.

After having only five Bewick's Swans in 1977-1978 it was very encouraging to see

16 Bewick's regularly on Swan Lake this winter. They included an immature and a pair of swans (known as Morecambe and Wise) ringed at Slimbridge in 1977. There was a maximum count of 21 Bewick's at the Mere and 197 on the marshes at Southport, almost double last year's figure.

Without doubt the main avian attraction of the winter months was the Collared Pratincole, an unusual wader with a flight somewhere between that of a Tern and a Merlin, as attested by the Lapwings that persisted in mobbing it as soon as it took to the air. This bird stayed with us from 17th October to 15th November 1978, and was the first record at Martin Mere.

Chris Tomlinson

Aviculture, 1978

Prior to the season a coordinated programme for the whole Trust was agreed. Species that bred particularly well at one centre need not be bred at another where they did not do as well. This would also take the pressure off Slimbridge's over-burdened breeding programme and allow concentration on the rarer and more difficult species.

During 1978 the Wildfowl Trust displayed 6,380 waterfowl and 382 flamingos, 2,369 at Slimbridge, 500 at Peakirk, 1,489 at Martin Mere, 1,180 at Washington, and 843 at Arundel. A total of 2,602 birds was reared.

Slimbridge had another very successful year in breeding members of the Stifftail family, including White-headed Duck, Argentine Ruddy Duck, Maccoa, North American Ruddy Duck and Black-headed Duck. A second rearing unit for these types of ducklings was constructed adjacent to the original one, connected by a sliding door. This new unit has boosted rearing efficiency. Two eggs of the parasitic Black-headed Duck were allowed to be hatched by the host Rosybill, to help forward a study on the behaviour of the young of this species.

One young Meller's Duck was raised. This is the first time that the wildfowl Trust have had this species to propagate. Unfortunately the breeding pair died but four more pairs have since arrived and these have been distributed between Slimbridge, Martin Mere and Arundel.

The Longtail, Pacific Eider and Musk Duck all laid for the first time at Slimbridge, only the Longtail producing fertile eggs. Two

young were hatched but not raised. The Spectacled Eider pair produced two clutches of eggs, all nine young that were hatched being males. Greater, Chilean and Caribbean Flamingos bred. The Chileans bred for the second year running at Peakirk. Three Andean and three James's Flamingos were sent from San Diego Zoo, and a clutch of White-backed Duck eggs were kindly donated by Mr Denis Wintle.

Because there were many birds of unknown origin the whole of the Peakirk collection was caught and inspected. This also gave MAFF a unique opportunity to test each bird to see if it had or was a carrier of avian TB. All Peakirk birds have been sorted and are now on record. More species have been added. 15 North American Ruddy Ducks were reared in their Flamingo winter quarters, while their pair of Trumpeter Swans reared six young.

Martin Mere proved to have a suitable habitat for White winged Wood Ducks and nine were reared. Eight new adolescent pens were created within their rearing ground.

Washington produced a young Trumpeter Swan for the first time. Adolescent pens with pools were also made with their rearing area.

Arundel showed that they are going to make an important contribution towards breeding some of the rare and difficult species in the future. A pair of Whistling Swans reared four young, and 17 Canvasbacks were reared, the only ones reared by the Trust this year.

M. Lubbock.

Birds held in Wildfowl Trust collections on 31st December 1978, and number of young reared in 1978.

Species	Slimbridge		Peakirk		Martin Mere		Washington		Arundel		Total reared 1978	Total held 31.12.78
	Adults	Birds reared 1978	Adults	Birds reared 1978	Adults	Birds reared 1978	Adults	Birds reared 1978	Adults	Birds reared 1978		
Maggie Goose	4	—	—	—	—	—	—	—	—	—	—	4
Spotted Whistling Duck	8	3	—	—	—	—	—	—	—	—	3	8
Eyton's Whistling Duck	17	7	—	—	—	—	—	—	—	—	7	17
Wandering Whistling Duck	4	—	—	—	—	—	—	—	—	—	—	4
Javan Whistling Duck	6	—	—	—	—	—	—	—	—	—	—	6
Fulvous Whistling Duck	13	20	6	—	13	8	—	—	—	—	28	32
Cuban Whistling Duck	28	15	—	—	13	6	—	—	13	—	21	54
White-faced Whistling Duck	12	7	3	5	6	—	7	1	12	11	24	40
N. Red-billed Whistling Duck	1	—	6	—	—	—	—	—	—	—	—	6
S. Red-billed Whistling Duck	30	36	—	—	16	2	8	—	—	—	38	54
Coscoroba Swan	4	7	2	1	2	—	2	4	9	3	12	10
Black Swan	14	24	2	7	6	1	4	4	9	3	39	35
Mute Swan	3	—	—	—	5	6	3	—	2	—	6	13
Black-necked Swan	8	18	2	—	4	—	2	—	4	—	18	20
Whistling Swan	4	4	2	—	2	—	2	—	2	4	8	12
Bewick's Swan	5	—	2	—	8	—	2	—	6	—	—	23
Jankowski's Swan	3	—	—	—	—	—	—	—	2	—	—	5
Whooper Swan	2	—	2	—	20	16	6	—	4	4	20	34
Trumpeter Swan	8	3	2	6	3	—	2	1	2	—	10	17
Swan Goose	26	7	2	—	14	2	5	1	—	—	10	47
Western Bean Goose	7	8	2	—	11	4	13	2	—	—	14	33
Russian Bean Goose	8	7	2	—	—	—	3	—	—	—	7	13
Thick-billed Bean Goose	7	—	—	—	—	—	2	—	—	—	—	9
Pink-footed Goose	8	7	2	—	80	30	12	5	8	—	42	110
European White-fronted Goose	15	7	2	—	14	—	6	—	4	—	7	41
Pacific White-fronted Goose	11	—	—	—	—	—	—	—	—	—	—	11
Greenland White-fronted Goose	21	13	2	—	16	7	9	—	—	—	20	48
Tule Goose	10	2	—	—	—	—	4	—	—	—	2	14
Lesser White-fronted Goose	18	19	10	1	22	4	8	—	15	—	24	73
Western Greylag Goose	40	—	—	—	36	25	39	5	—	—	30	115
Eastern Greylag Goose	5	5	—	—	2	2	—	—	—	—	7	7
Bar-headed Goose	18	12	3	—	19	3	12	4	25	—	19	77
Emperor Goose	42	48	4	—	19	—	27	12	—	—	61	92
Lesser Snow Goose	18	15	2	2	4	5	1	5	—	—	27	25

Species	Slimbridge		Peakirk		Martin Mere		Washington		Arundel		Total reared 1978	Total held 31.12.78
	Adults	Birds reared 1978	Adults	Birds reared 1978	Adults	Birds reared 1978	Adults	Birds reared 1978	Adults	Birds reared 1978		
Greater Snow Goose	54	20	—	—	3	—	1	—	—	—	20	58
Ross's Goose	35	6	13	1	21	3	19	1	11	4	14	99
Atlantic Canada Goose	—	—	—	—	10	—	3	—	3	3	3	16
Todd's Canada Goose	2	—	—	—	—	—	—	—	—	—	—	2
Moffitt's Canada Goose	4	—	—	—	—	—	2	—	—	—	—	6
Giant Canada Goose	2	—	—	—	2	8	—	—	2	—	8	6
Lesser Canada Goose	2	—	—	—	2	3	—	—	—	—	3	4
Taverner's Canada Goose	4	3	—	—	—	—	—	—	—	—	3	4
Dusky Canada Goose	4	9	3	4	2	4	8	4	—	—	21	17
Vancouver Canada Goose	—	—	—	—	1	—	—	—	—	—	—	1
Aleutian Canada Goose	8	5	—	—	2	—	2	—	2	2	7	14
Richardson's Canada Goose	13	10	—	—	—	—	2	1	15	1	12	30
Cackling Canada Goose	12	12	4	3	24	9	14	1	—	—	23	54
Hawaiian Goose	150	36	5	—	30	11	16	13	6	—	60	162
Barnacle Goose	190	30	4	—	56	20	73	17	38	8	75	207
Dark-bellied Brent Goose	12	—	—	—	2	—	12	—	—	—	—	26
Light-bellied Brent Goose	7	—	—	—	—	—	—	—	—	—	—	7
Black Brant	15	4	3	—	5	—	3	—	—	—	4	26
Red-breasted Goose	30	2	7	—	10	—	8	—	7	—	2	62
Ruddy Shelduck	6	—	4	—	8	5	4	—	—	—	5	22
Cape Shelduck	4	9	—	—	2	1	2	—	—	—	10	8
Australian Shelduck	8	13	2	—	2	—	2	—	2	—	13	16
New Zealand Shelduck	6	12	2	—	9	—	2	—	2	—	12	21
Moluccan Radjah Shelduck	9	7	2	—	3	—	2	—	2	—	7	18
Common Shelduck	8	2	18	9	32	25	6	4	15	10	50	79
Egyptian Goose	4	13	—	—	2	—	4	—	—	—	13	10
Orinoco Goose	6	—	—	—	—	—	—	—	1	—	—	7
Abyssinian Blue-winged Goose	4	4	—	—	4	1	—	—	—	—	5	8
Andean Goose	2	5	1	2	2	—	2	—	2	—	7	9
Ashy-headed Goose	4	7	2	—	4	7	2	4	—	—	18	12
Ruddy-headed Goose	6	9	2	—	4	12	4	—	2	1	22	18
Lesser Magellan Goose	2	—	2	1	2	—	2	—	2	—	1	10
Greater Magellan Goose	4	7	—	—	4	9	2	2	—	—	18	10
Cereopsis Goose	12	13	3	5	4	3	3	—	—	—	21	22
Magellanic Steamer Duck	3	—	—	—	—	—	—	—	—	—	—	3
Falkland Steamer Duck	2	—	—	—	—	2	—	2	—	—	—	6

Patagonian Crested Duck	6	9	2	1	6	1	2	—	—	—	11	16
Andean Crested Duck	4	6	—	—	—	—	1	—	—	—	6	5
Bronze-winged Duck	10	1	2	—	2	—	2	—	—	—	1	16
Marbled Teal	13	9	3	—	8	—	10	21	6	—	30	40
Cape Teal	21	15	7	—	4	—	2	—	—	—	15	34
Hottentot Teal	8	9	1	—	—	—	2	—	—	—	9	11
N. Versicolor Teal	16	7	1	—	10	—	4	—	2	—	7	33
S. Versicolor Teal	12	6	—	—	—	—	—	—	—	—	6	12
Puna Teal	12	14	3	4	6	1	17	9	—	—	28	38
Red-billed Pintail	11	6	9	2	11	6	3	—	—	—	14	34
Lesser Bahama Pintail	16	20	13	2	29	1	7	—	5	—	23	70
Greater Bahama Pintail	1	—	—	—	—	—	—	—	—	—	—	1
Chilian Pintail	7	—	4	—	6	—	4	—	—	—	—	21
Northern Pintail	10	7	17	8	29	1	47	30	29	—	46	132
Kerguelen Pintail	4	—	—	—	—	—	—	—	—	—	—	4
Chilean Teal	10	—	6	—	7	1	4	5	—	—	6	27
Sharp-winged Teal	8	5	—	—	8	—	3	—	9	4	9	28
European Green-winged Teal	9	1	4	—	16	4	13	3	18	—	8	60
American Green-winged Teal	6	—	—	—	—	—	4	1	—	—	1	10
Baikal Teal	11	—	3	—	—	—	3	—	—	—	—	17
Falcated Teal	14	5	4	—	14	6	8	—	7	2	13	47
Australian Grey Teal	16	24	—	—	10	5	6	—	—	—	29	32
Adaman Teal	5	—	—	—	—	—	—	—	—	—	—	5
Chestnut-breasted Teal	20	18	4	—	9	—	2	—	—	—	18	35
New Zealand Brown Teal	2	—	—	—	1	—	—	—	—	—	—	3
Greenland Mallard	3	—	—	—	—	—	—	—	—	—	—	3
Florida Duck	5	5	—	—	4	2	—	—	—	—	7	9
Mexican Duck	7	2	—	—	3	1	2	—	—	—	3	12
North American Black Duck	4	—	—	—	—	—	—	—	—	—	—	4
Hawaiian Duck	6	24	—	—	13	3	—	—	—	—	27	19
Laysan Teal	24	24	2	6	15	7	12	4	3	2	43	56
Indian Spotbill	5	13	—	—	6	1	2	—	—	—	14	13
Chinese Spotbill	4	—	—	—	—	—	—	—	—	—	—	4
New Zealand Grey Duck	4	—	—	—	5	6	—	—	—	—	6	9
Pelew Island Grey Duck	6	10	—	—	4	—	—	—	2	—	10	12
Australian Black Duck	8	5	—	—	—	—	—	—	—	—	5	8
Philippine Duck	7	2	—	—	9	6	8	—	2	—	8	26
Meller's Duck	5	1	—	—	2	—	—	—	2	—	1	9
African Yellowbill	7	16	2	5	—	—	4	—	—	—	21	13

Species	Slimbridge		Peakirk		Martin Mere		Washington		Arundel		Total reared 1978	Total held 31.12.78
	Adults	Birds reared 1978	Adults	Birds reared 1978	Adults	Birds reared 1978	Adults	Birds reared 1978	Adults	Birds reared 1978		
African Black Duck	3	—	—	—	—	—	—	—	—	—	—	3
Gadwall	50	20	5	6	93	30	18	7	40	20	83	206
European Wigeon	20	—	20	4	46	22	29	11	40	12	47	155
American Wigeon	10	10	4	2	10	5	10	1	1	—	18	35
Chiloe Wigeon	16	7	6	12	28	8	17	1	15	3	31	82
Atlantic Blue-winged Teal	7	9	2	5	6	1	2	—	8	1	16	25
Argentine Cinnamon Teal	7	13	—	—	7	2	—	—	—	—	15	14
Northern Cinnamon Teal	6	5	3	2	15	3	19	10	20	4	24	63
Garganey	11	13	6	1	9	2	11	13	22	5	34	59
Argentine Red Shoveler	21	—	7	—	15	3	21	5	6	—	8	70
Cape Shoveler	16	6	4	—	11	—	—	—	—	—	6	31
Australian Shoveler	13	3	—	—	—	—	—	—	—	—	3	13
New Zealand Shoveler	5	—	2	—	—	—	—	—	—	—	—	7
Common Shoveler	16	15	9	—	17	—	31	22	30	9	46	103
Ringed Teal	32	28	6	4	33	19	28	4	27	—	55	126
Pink-eared Duck	2	—	—	—	—	—	—	—	—	—	—	2
European Eider	39	42	8	—	23	16	31	14	36	28	100	137
Pacific Eider	5	—	—	—	—	—	—	—	—	—	—	5
Northern Eider	3	—	—	—	—	—	—	—	—	—	—	3
American Eider	1	—	—	—	—	—	—	—	—	—	—	1
King Eider	4	—	—	—	—	—	—	—	—	—	—	4
Spectacled Eider	7	7	—	—	—	—	—	—	—	—	7	7
Red-crested Pochard	14	10	25	7	24	11	23	19	12	7	54	98
Rosybill	17	22	4	—	29	4	12	1	11	—	27	73
African Pochard	7	—	—	—	3	—	—	—	—	—	—	10
Canvasback	17	—	4	—	—	—	4	—	21	15	15	46
European Pochard	16	8	14	—	15	2	18	9	50	25	44	113
Redhead	13	16	4	2	18	9	6	—	—	—	27	41
Common White-eye	10	—	1	—	4	1	2	—	—	—	1	17
Baer's Pochard	10	10	4	—	—	—	—	—	6	6	16	20
Australian White-eye	13	—	3	3	5	—	2	—	—	—	3	23
New Zealand Scaup	19	10	4	—	9	1	9	—	—	—	11	41
Ring-necked Duck	12	—	4	—	6	—	—	—	4	2	2	26
Tufted Duck	20	23	20	16	69	20	46	12	50	25	96	205
Lesser Scaup	12	7	3	—	6	—	3	—	—	—	7	24
European Scaup	18	12	6	3	11	—	20	—	9	—	15	64
Lesser Brazilian Teal	4	3	—	—	7	3	—	—	—	—	6	11
Greater Brazilian Teal	7	5	2	—	—	—	5	—	—	—	5	14

Maned Goose	20	15	8	9	21	10	6	—	7	—	34	62
Mandarin	100	30	29	9	40	6	29	13	31	4	62	229
Carolina	30	20	27	19	45	37	37	22	26	2	100	165
African Pygmy Goose	1	—	—	—	—	—	—	—	—	—	—	1
Comb Duck	12	1	—	—	—	—	—	—	—	—	1	12
South American Comb Duck	8	—	—	—	—	—	4	—	—	—	—	12
Hartlaub's Duck	5	2	—	—	—	—	—	—	—	—	2	5
White-winged Wood Duck	27	11	2	—	11	8	—	—	5	—	19	45
Muscovy Duck	6	7	—	—	4	—	—	—	—	—	7	10
Spur-winged Goose	2	—	—	—	—	—	—	—	—	—	—	2
Black Spur-winged Goose	3	—	—	—	1	—	—	—	—	—	—	4
Common Scoter	5	3	—	—	—	—	2	—	5	—	3	12
Velvet Scoter	5	—	—	—	—	—	—	—	—	—	—	5
American White-winged Scoter	4	—	—	—	—	—	—	—	—	—	—	4
Atlantic Harlequin Duck	1	—	—	—	—	—	—	—	—	—	—	1
Pacific Harlequin Duck	2	—	—	—	—	—	—	—	—	—	—	2
Long-tailed Duck	3	—	—	—	—	—	—	—	6	—	—	9
Barrow's Goldeneye	13	2	—	—	8	—	9	—	10	—	2	40
European Goldeneye	23	7	—	—	7	—	11	—	10	—	7	51
American Goldeneye	8	—	2	—	—	—	—	—	—	—	—	10
Bufflehead	14	1	1	—	—	—	4	—	1	—	1	20
Smew	15	6	—	—	—	—	2	—	—	—	6	17
Hooded Merganser	14	5	—	—	3	—	4	—	4	—	5	25
Red-breasted Merganser	5	7	2	—	—	—	2	—	—	—	7	10
Goosander	6	8	—	—	5	2	4	—	2	—	10	17
American Merganser	1	—	—	—	—	—	—	—	—	—	—	1
White-headed Stifftail	22	26	—	—	—	—	4	—	6	2	28	32
North American Ruddy Duck	40	30	20	15	3	—	6	—	17	11	56	86
Peruvian Ruddy Duck	3	—	—	—	—	—	—	—	—	—	—	3
Argentine Ruddy Duck	20	27	2	—	2	—	—	—	—	—	27	24
African Maccoa Duck	14	8	—	—	—	—	—	—	—	—	8	14
Musk Duck	3	—	—	—	—	—	—	—	—	—	—	3
African White-backed Duck	5	—	—	—	—	—	—	—	—	—	—	5
Madagascar White-backed Duck	2	—	—	—	—	—	—	—	—	—	—	2
Black-headed Duck	15	6	—	—	—	—	—	—	—	—	6	15
Greater Flamingo	61	4	—	—	—	—	—	—	—	—	4	61
Caribbean Flamingo	57	4	—	—	—	—	—	—	—	—	4	57
Chilean Flamingo	129	6	23	3	27	—	—	—	—	—	9	179
Andean Flamingo	34	—	—	—	—	—	—	—	—	—	—	34
James' Flamingo	17	—	—	—	—	—	—	—	—	—	—	17
Lesser Flamingo	34	—	—	—	—	—	—	—	—	—	—	34
Crested Screamer	4	—	—	—	—	—	—	—	—	—	—	4

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