Ringing Whooper Swans in Iceland, 1962

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Summary

A PARTY of four spent two weeks in the Arnavatnsheidi (65° 55′ N, 20° 25′ W), north of Eiríksjökull in western Iceland in August 1962 learning how to catch Whooper Swans for ringing during the period when the adults are flightless due to the moult. Most of the techniques tried failed, owing to the wariness of the swans, their speed in running and their reluctance to leave water in the presence of danger. By chasing or wading into lakes, equipped with swan hooks, we were able to ring and weigh 49 cygnets and 6 adults. Adult weights ranged from 7.4 to 10.3 kg., three breeding birds being heavier and longer-billed than three non-breeders. Cygnet weights ranged from 3.1 to 6.0 kg., average 5.0 kg. The difference in weight between lightest and heaviest members of a brood was greatest in large broods. Brood sizes varied from 1 to 6, averaging 2.8. Two ringed cygnets have so far been recovered: in Co. Down in December 1962 and in Stirling in January 1963. An area of 15 sq.miles held at least 40 pairs of Whoopers and 400 non-breeders.

Introduction

Eight years ago Dr. Finnur Gudmundsson pointed out in the course of a conversation how little was known about Whooper Swan *Cygnus cygnus* movements and suggested that an expedition devoted to swan ringing would be worthwhile. The capture of geese during the flightless period of their moult had already been given glamour by Peter Scott's vivid accounts of round-ups of Pink-footed Geese in Þjorsarver below Hosjökull. Furthermore, a precedent for a successful small scale project had been set by the work of a Sherborne School group in Spitsbergen. It was easy then to become enthusiastic and exciting to plan a similar expedition directed at flightless swans. The main question was whether a small but mobile party could catch a sufficient number of moulting swans to justify the time and effort which would certainly be involved.

Little is known about the origin of Whooper Swans wintering in Britain or about the movements of any of the known breeding populations. Only a single ringed bird had been recovered to indicate the source of our wintering Whoopers: a cygnet ringed in Iceland on 24th July 1944 and found dead at Grogary in South Uist in January 1948.

There were other noticeable gaps in our knowledge of this species. Why was it that swans wintered on the Northumberland coast while others remained on more sheltered lakes provided that these were not frozen? Perhaps this contrast in habitat reflected some difference (in age or stock?) between the two groups. Again, we accept that Bewick's Swans visit these islands from Siberia so it is not inconceivable that some of our Whoopers may also originate there.

In 1959 we made an attempt to trap some Whoopers at night on Grindon Lough. This was a complete failure and the memories of wading arm-pit deep in the darkness did not encourage us to continue that particular method.

The summer of 1962 seemed clear for an Icelandic visit. The place had already been decided by Dr. Finnur Gudmundsson's assertion that the Arnavatnsheidi, north of Eiríksjökull, held one of Iceland's largest concentrations of swans. The time must clearly be in late July or in August, the period in which flightless swans had mainly been reported. What was in doubt was exactly how the birds were to be caught. The goose-catching expedition of Scott, Fisher and Gudmundsson in 1951 (*Wildfowl Trust 5th Ann. Rep.* : 79-115, 1952) wing-tagged about twenty swans, but we were uncertain how much they were helped by having ponies. In the armchair security of our ignorance it seemed likely that a few men could cut off parties of grazing

swans from the water by sprinting down to the lake from some well chosen points. This then was provisionally to be our main plan of campaign. For family parties on small lakes rubber dinghies seemed indicated, though we took them in the face of Hugh Boyd's pessimism as to their value. We also made some swan hooks copied from those used in the upping ceremonies on the Thames.

Three of us — A. J. Clissold, D. T. M. Lloyd and myself — flew from Prestwick to Reykjavik on 2nd August, to be joined two days later by the fourth member of the group, I. T. Miller. Our departure for the Arnavatnsheidi was delayed four days owing to difficulty in hiring a suitable vehicle for the final stage of our journey. It was August Bank Holiday weekend, a time when most of Reykjavik leaves town for nearby resorts. Disappointing though this was, it was offset by the hospitality of Jón Sigurdsson who helped us in more ways than we could easily recount. Not only did he deal with the elaborate red-tape attached to retrieving our stores and equipment from the shipping company's warehouse, but found us accommodation, escorted us round Reykjavik and arranged the hire of a Land Rover. Finally he offered to accompany us out to our destination so that he could then return the borrowed vehicle.

We left Reykjavik for the Arnavatnsheidi on the morning of 7th August and in the evening we reached Kalmanstunga, the last farm on the edge of the Arnavatnsheidi, where we were able to collect more fuel for the Rover and, through Jón Sigurdsson, learn from the farmer Kristofer Olafsson the best route to Úlfsvatn, the large lake we had chosen as our base. This ran north-east roughly parallel with the Nordhlingafljot over ground that was so uneven and boulder-strewn that it took us five hours to reach Ulfsvatn only 15 miles away. From a gentle rise overlooking the lake we were able to see over 300 swans feeding in the half-light at one end of the lake. It was impossible to take our vehicle any further and at this point we set up our base camp. We had not expected such large numbers and as we set Jón Sigurdsson on his way back to Reyjavik with the Land Rover, there were signs that the proverb about chicken counting was capable of a certain twist!

Arnavatnsheidi

In the fortnight which followed our arrival in the Arnavatnsheidi we covered an area lying mainly within two lines which might be drawn running from the Nordhlingafljot due south of our camp, diverging to include Ulfsvatn and beyond it a sector of the extensive lake-filled tract lying to the north. To the south and dominating the whole region was an outlier from the much larger Langjökull glacier, Eiríksjökull. This ice-cap surmounted a mountain which rose steeply from a basal laval plain, its sugar-icing like top contrasting sharply with its near black walls. The lava field, the Hallmundarhraun, extended up to the Nordhlingafljót which flowed south-west carrying melt-water from some of the northern tongues of Langjökull. This river separated the lava from the greener terrain of the Arnavatnsheidi with its countless lakes. Among these Ulfsvatn was the largest being over 4 km. long, though Arnavatn Stóra to the east was probably nearly as big. Surrounding Ulfsvatn but particularly to its north were innumerable smaller lakes separated by gently undulating ground. Barren stone-covered rises sloped down to stretches of more varied vegetation round the lakes where sodden sedge and cotton grass patches made walking rather tedious. Nearly all of the region lay over 1400 ft.

Birds of the area

The most widely distributed bird in the area was probably the Golden Plover. There were Dunlin near some of the lakes and odd pairs of Whimbrel, but only a few Redshank and Purple Sandpiper were seen. A flock of over forty Red-necked Phalaropes were seen on several occasions feeding on a moderate sized lake, displaying their customary tameness.

The deeper lakes supported Scaup, Long-tailed Duck and Red-breasted Merganser while in some of the marshes there were a few Mallard and Teal. Both Great Northern and Red-throated Divers were common and among our best recollections will always be their calls in the fading light. On the only river of any size, the Nordhlingafljót, we saw a family of Harlequins. A few small flocks of Greylag Geese were seen in flight, but Ptarmigan and Raven were seen rather more regularly. Meadow Pipits were common and several flocks of Snow Buntings were noted but not many Wheatears. Among the predators, Gyrfalcons and Merlins passed over several times, though less regularly than Arctic Skuas. On 8th August we watched a spectacular chase of a Meadow Pipit by two Arctic Skuas working together in which they spiralled almost out of sight.

Catching methods

The night after our arrival Ian Miller and I set off to put into operation our ' Method Number 1 ' for swan catching, involving the ' heading off ' of grazing birds from the water's edge. Under cover of the two hours of darkness, we erected a tent in a sheltered spot near the place where we had seen a good number of swans feeding early the day before. Hundreds of large white feathers lay on the ground round about, together with clusters of the bulky swan droppings. Initially all seemed to be well and swans could be heard calling from the water nearby, but they never came ashore and we had our first premonition that the Whoopers were perhaps more cautious than we had thought. This was the first of many attempts to intercept grazing swans from the water—and most of them were equally futile. With the country so open, the birds so wary and the ground quite unsuited for running over, we quickly grew used to seeing the swans running down to the lake comfortably ahead of us! Even in our rather breathless and dispirited state at such times, it was always impressive to see a large flock on the move—their wings held up like sails and calling as they covered the marshy ground with surprising speed. In spite of the fact that there were over 400 swans, all in adult plumage and apparently non-breeding, our repeated failures persuaded us to turn our efforts to family parties scattered on adjoining smaller lakes. Our plan here was for two men in dinghies to move across the water with the object of forcing the swans up on to the land at the far side, where the other two members of the party would be hidden and ready to capture them. The two men on the water were connected by a line to which balloons had been tied, producing a ' barrier effect '. Tony Clissold and David Lloyd manned the dinghies on our first trial of Catching Method No. 2, on a small lake occupied by two flightless adults. In the dinghies, which were of an ex-R.A.F. one-man type, it was quite impossible to overtake a swimming swan, but helped by the improvised barrier, they effectively moved the birds into one corner of the lake. Everything appeared to be going according to plan with the birds showing all the restiveness one would expect before actually leaving the water when suddenly both birds turned about, flapped over the flimsy barrier and gained the safety

of the middle of the lake. Further drives across the lake were made but without success and it was clear that, though swans regularly leave the water to feed, they are most reluctant, even when pressed, to do so in the presence of danger.

This failure came as a more acute disappointment than our more gradual realisation that our first method was largely ineffective. It was intriguing however that the impulse which directed them during the moult to what would normally be the safety of the water was still dominant even when the threat came from the water itself. This was not invariably true and later we saw several instances in which parties of Whoopers on our approach would desert a small lake for a nearby large one. The deciding factors seemed to be the size of the occupied lake and the proximity of any adjoining larger ones. In this case it was probably significant that there was no other lake in the immediate vicinity.

Following these failures our next move was to prospect on foot as much of the area as possible to assess the density of breeding swans and also to utilise any opportunities of catching swans that might present themselves. This brought early success with the unexpected encounter on clearing a rise of a pair of Whoopers followed by five cygnets in the act of moving from one lake to another. The adults were too fast for us but a sprint enabled us to breathlessly secure the five young. Elated at our good luck, we were still admiring them when a shout from one of the party attracted the rest of us to another family party on the move. An extra spurt of running was managed and shortly our number of captives had risen to eight! Hampered by our gum boots and marshy ground, we were unable to overtake the two parent birds which were just able to reach the water before us.

Initially our hands were more than full holding the eight cygnets and keeping the two families separate, but by tying their legs together and hooding them we were able to concentrate all our efforts on each in turn. It was interesting how quickly the cygnets settled down and in fact some of the hooded ones appeared to go to sleep with their bills resting on their mantles!

Ringing—with monel rings of Swedish make—was followed by weighing, dying and photography. Sheep-marking dye was applied as much to prevent the possibility of our chasing a previously ringed swan as to increase the chances of their being noticed in their winter quarters.

Thereafter more swans were run down, some after a sudden meeting and others after preliminary stalking, but with each the same procedure was undergone. In the case of the few adults we caught bill measurements and sexing (by vent eversion) were also carried out.

Later, with only about one week of our stay remaining, David Lloyd made what was to us a surprising discovery. After a particularly protracted chase over difficult country had ended in three cygnets reaching a small lake when almost within his grasp, he did more than expostulate and tripped and went in after them. It was then realised after several further trials that many of the lakes were in fact just over waist deep, allowing more birds to be caught by entering the water ourselves, equipped with long swan hooks. It was sometimes difficult to predict the depth of a lake and, though strongly suggestive, large size or the presence of a Great Northern Diver fishing did not invariably indicate that a given piece of water was too deep for wading. None of us however can recollect being able to cross a lake occupied by a Red-breasted Merganser.

Habits and behaviour

Mention has already been made of the flock of over 400 non-breeding birds on Úlfsvatn. Although they are seemingly well known to Icelandic ornithologists, there are few references in the literature to large flocks of swans in the breeding season. *The Handbook of British Birds* (1940) quotes Hantzsch as stating that non-breeding young birds remain in parties in summer. P. F. Holmes and D. B. Keith (*Ibis* 1936 : 322-30) are among the few to record in print a sizeable flock at this time of year, 124 having been seen by them on 31st July 1934 on Graenavatn, a small lake half a mile south of Myvatn. Just prior to our leaving Reykjavik we heard of a flock of about 200 on the coast near Eyrarbakki. According to Finnur Gudmundsson and Jón Sigurdsson this was not unusual. Clearly the literature is a little misleading on this question.

In spite of the wariness of the Ulfsvatn flock when grazing, it was not uncommon to see some birds feeding over 100 yards from the lakeside. Though it is possible that certain groups may have had regular feeding times, there was no time of day that we did not see some section of the flock ashore. Even in the fading light of 11 p.m. or at 4 a.m. we were able to make out their fat white shapes pulling at the sedge. A large part of the flock apparently moved overland to a smaller lake lying two miles to the west, where over 200 swans appeared just after the numbers on Ulfsvatn had fallen markedly.

With regard to the breeding birds we found that family parties would usually not be dislodged from a sizeable lake on which they tended to keep in a fairly close group. If surprised on the land or on a small pool, they would make for a larger lake, often setting off when we were still a long distance away. Frequently they would display a remarkable familiarity with the surrounding terrain by running in the right direction for a fairly distant piece of water even though there was no lake in view.

If a family party was being chased the adults seldom waited for the slower cygnets or showed any blatant defence of their young, though one might pause calling on a ridge before going out of sight. This was not always the case and the fact that the pen was caught on two occasions when its flightless mate escaped, no doubt reflects the greater reluctance of the female to desert the cygnets. Especially in the last week of our stay, we came across several pairs where one of the adults could fly once again and it was common for this bird to show an impressive concern by calling and flying round, sometimes close over our heads.

Once the young had been deserted, they tended to split up in confusion and if they could be intercepted before they reached a lake, it was often difficult for one man to deal with all. A. J. Clissold was more often in this position than the rest of us and undoubtedly deserves credit for his stamina.

Distinctive features of an adult swan on the run were the tall-necked appearance with the bill pointing slightly upwards (contrasting with the young which did not hold up their heads) and the tendency to hold out the wings from the body as if for balance. Though they were surprisingly quick on their feet, it was not rare for them to stumble.

Once caught, their behaviour was interesting. Both adults and young when first picked up would adopt a distinctive posture in which they would lie motionless with the neck hanging limply down. Presumably this was the ' death-feigning posture ' described by Scott, Fisher and Gudmundsson, though it was noticeable that the eyes were not closed and, particularly by the cygnets,

the posture was maintained for little more than a minute. The neck would then be raised and they would start looking round with apparent interest. If on first being caught they were placed on the ground, they would often extend the neck horizontally to its full length and lie motionless for a short while before apparently forgetting or ignoring the danger, and raising their necks once more to look about them. There was a striking variability in the temperament of the cygnets. Most were fairly placid but a few even after hooding would have blundered off if allowed.

Both Great Northern and Red-throated Divers, Scaup and Long-tailed Duck regularly shared the same lake as swans, but we never saw any sign of friction though on 18th August we watched two Whoopers being mobbed by a pair of Arctic Terns as they swam across what was presumably part of their territory. One might have thought that the frequency with which this must occur would permanently dull the terns' sense of intrusion. A similar instance was recorded by Scott, Fisher and Gudmundsson and nearer home on the Farne Islands I have seen Arctic Terns harassing Eider Ducks nesting in the middle of their colony.

Diving

Though it has been noted occasionally in the Mute Swan, diving by Whoopers does not seem have been recorded. On more than one occasion we saw well-grown cygnets diving and swimming under water in attempts to evade capture.

Moulting

On our arrival at Ulfsvatn on 7th August there was little doubt from their behaviour when approached that the majority of the 400 swans there were flightless. Judging from the vast numbers of long primary feathers which littered an extensive area around the lake, the moult had been in operation some little time. Even in the folded wing the effect of the moult could be seen at a moderate distance, but when extended the wings showed best the stumpy new primaries.

The first swan in flight was seen on 10th August. On 12th August we intercepted two adults from the large flock but a further three birds when cornered managed with a great effort to take off. After this we came across several breeding pairs in which one of the two birds could fly. The only occasion we were able to infer the sex of such a swan by sexing its still flightless mate, we found the latter to be a male. This is in agreement with the findings of Scott, Fisher and Gudmundsson, suggesting that female Whooper Swans moult before the males.

Variations, predation and tapeworm infestation

Only two abnormalities were encountered, both in the same bird, an adult pen which had blue-grey eyes and an apparently non-cystic protuberance on one toe. Scott, Fisher and Gudmundsson noted a similar variation in the irides of a female observed in Central Iceland on 24th July, 1951.

We saw no ectoparasites though a careful search was not made, but in every cygnet suitably examined we found tapeworm infestation.

We saw no evidence of predation, though it is possible that the Mink and Arctic Fox, which are common in the area, may on occasions be a threat to the eggs and newly hatched young. Swans are not popular with the farmers whose sheep graze over the region but we saw nothing to suggest that the

strict protection accorded to the species was ever infringed. Difficult as it was to believe, we were told of one pair of swans which had made headlines in the Icelandic Press by killing several sheep!

Weights

6 adults and 49 cygnets were ringed. The young varied in weight from 3.1 to 6.0 kg., with an average of 5.0 kg. The widest weight variation within any brood, of 1.1 kg., occurred in no less than five of the eleven broods of three or more cygnets, including both the broods of five and six which were ringed. Though the numbers are clearly too small upon which to base any definite deduction, they nevertheless suggest that the larger the brood the more likely there is to be a fairly large weight difference between the heaviest and lightest cygnets in a brood. This cannot be due to age or selective parental feeding, as the eggs are said to hatch at about the same time and the young are not dependent on food brought by the parents. It might possibly reflect a limited brooding capacity of the parent with a partial loss of hardiness by the less fortunate cygnets.

The six adults caught varied in weight from 7.4 to 10.3 kg. The three breeding birds were heavier (average 9.4 kg.) than the presumably younger non-breeding swans (average 7.9 kg.) and their bill measurements were also greater (averaging 99.3 mm. compared to 92 mm.).

Breeding density and brood size

No accurate estimate of the density of breeding pairs was made but in an area of 15 square miles north of Ulfsvatn there were approximately 40 pairs of Whoopers.

I am grateful to A. J. Clissold for the following details of brood sizes:

brood size	1	2	3	4	5	6
number seen	5	7	13	4	2	1

mean brood-size 2.81

All the cygnets seen were well-grown and the above counts may well be rather less than clutch-size or the number of eggs hatched.

Recoveries

Two of the cygnets we ringed have already been recovered. The first (028) ringed on 15th August east of Ulfsvatn was found dead, badly decomposed, beneath some high-tension cables near Downpatrick in County Down on 8th December, 1962. The other (002) was ringed north of Ulfsvatn on 11th August and found dead under electric cables on the Polmaise Estate, Stirlingshire in January 1963. The only previous Whooper recovered in Britain (in South Uist) had also been killed by flying into wires.

Conclusion

It is our conviction that the ringing of a much larger number of Whooper Swans would be possible by a larger expedition equipped with watercraft faster than our slow rubber dinghies. A flock could be directed into a pen erected in the shallows at one end of a lake and then ringed with a minimum of disturbance, in much the same way as flightless geese have been ringed. A more ambitious expedition on these lines is at present planned, provisionally for August 1963.

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Measurements of White-fronted Geese wintering at Slimbridge

J. V. Beer & H. Boyd

Summary

BETWEEN 1959 and 1963 181 White-fronted Geese caught alive or handled after death at Slimbridge in the months January to March were weighed and measured. As in other geese, males were found to be bigger than females. First-winter geese weighed less and had shorter wings than older geese, but were indistinguishable by length of bill, head or tarsus. In early March, 1959 the geese weighed were heavier than at any other time. Males and females were identified by examination of the gonads of dead birds and the cloaca of live ones: attempts to classify males and females on the basis of measurements alone did not give sufficiently reliable results. Weights and lengths are highly correlated. An investigation of the possibility of developing an index of "condition" utilising these correlations showed that for statistical reasons such an index would be too unreliable to be of much value.

Introduction

257 White-fronted Geese *Anser albifrons* caught for ringing at Slimbridge, Gloucestershire between February, 1958 and March, 1962 were weighed and many of them had several linear measurements made. These data from live birds have been supplemented by those from 55 geese shot in the vicinity and from 12 others picked up dead or dying. This investigation had four objects. First, to provide for *A. a. albifrons* morphometric data comparable with those available for Pink-footed Geese *A. brachyrhynchus* and Greylag Geese *A. anser* (Elder, 1955, Beer and Boyd, 1962). Second, to seek a reliable method of determining the sex of a White-fronted Goose from its external characteristics. Third, to investigate the relationships between body-weight and other measures of size, in order to establish criteria for the "condition" of an individual for use in pathological studies. Fourth, to look for differences in weight in the course of the winter and between one year and another.

The geese handled alive, after capture in rocket-propelled nets, were weighed and measured in the field. For weighing, each goose was wrapped in a sack and laid on a dial spring balance calibrated in 20 gm. intervals, periodically standardised against brass weights. The sack was check weighed at frequent intervals. The weight of the goose was determined by subtraction of the sack weight from the indicated weight, and recorded to the nearest 0.01 kg. Wing lengths were measured, to the nearest mm., on a metal scale with a stop at the zero end. Other linear measurements were made with a vernier caliper reading to 0.1 mm. The sex of live geese was determined by eversion of the cloaca to detect the presence or absence of a copulatory organ. Geese in their