

Knowing Mr Turner's interest in the birds, and his capabilities as a photographer, I consider that this film will be invaluable as a documentary of the life of the Stewart Island Shag.

Sealers Bay, off Codfish Island: Dell, 1948. In 1934 the late Mr E. F. Stead estimated this colony as containing about sixty nests. Mr Dell in 1948 could obtain no estimate of numbers, 'but it appeared that the nesting population was considerable'.

*Bibliography:*

Herries Beattie: *Maori Place-names of Otago*.

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W. R. B. Oliver: *New Zealand Birds*.

R. K. Dell: 'Birds of Codfish Island'. *N.Z. Bird Notes*, Vol. 3, No. 9 — April 1950.

## **A FRESHWATER COLONY OF PIED SHAGS (*P. varius*) AT TAKAPUNA**

### **WITH OBSERVATIONS ON SOME OTHER SHAGS**

*Compiled from the notes of several observers*

For many years the water of L. Pupuke was used for domestic purposes and as a result of the lowering of the level a variety of trees, mostly exotic pines, willows and wattles, and thickets of bamboo sprang up on what had been the floor of the lake. Some of the trees had reached the height of 50 to 60 feet. When pumping ceased the water level steadily rose till by 1953 it was almost back at the original shoreline and most of the encroaching vegetation was dead or dying. Now in 1955 the gaunt relics of big pines stand or lie more than a chain out from the shore. L. Pupuke is a large crater-lake, situated about a mile from the sea. Eels and introduced carp made it a good fishing ground for shags. Black, White-throated and Little Pied Shags were commonly present; the Little Black had been recorded and the Big Pied was an occasional visitor from Waitemata and the Hauraki Gulf.

About 1952 a few pairs of Pied Shag (*P. varius*) began to breed there. As a freshwater colony of these shags is unusual in New Zealand and as the colony has increased most remarkably, it seems worthwhile giving an account of it, based on the notes of various observers. In the Hauraki Gulf the typical colony of Pied Shags is in pohutukawas which are growing on a cliff and overhanging the sea. An atypical colony in ngaio (*Myoporum laetum*) at the Chickens has recently been described (*Notornis* 6, p. 154). The only other freshwater colony of *P. varius* known to the authors is in pohutukawas which overhang L. Paritu, one of the two lakes inside the great crater of Mayor I. in the Bay of Plenty. This colony differs from most others in lying snug and sheltered. These two lakes also are said to contain a species of introduced carp.

On 9/8/53 we were surprised to find Pied Shags breeding at L. Pupuke. There were six nests in one dead tree and one in another. Most nests had two adults in attendance and incubation was in progress. Nearly a score of fully-winged smudgy juveniles were also present. It seems safe to assume that the colony had been established at the latest during the previous autumn, but more probably in the winter or early spring of 1952. It is now known that at L. Pupuke breeding goes on all through the winter. Only two Black Shags (*P. carbo*) and one White-throated (*P. brevirostris*) were seen.

R. B. SIBSON, J. C. DAVENPORT

Donald Merton, who visited L. Pupuke in September 1953 and August 1954, has sent the following notes.

'Before 1953 only a few shags had nested. In 1952 some shags, reported as "black", nested in some bushy "basket" willows. So far they have not nested there this season (1953), probably because the water has risen. A colony of shags is now scattered along 200 yards of lake shore. On 9/9/53

there were 24 nests of Pied Shags; building and incubation were in progress. A pair of "black" shags was building among the Pied; and a pair of Little River Shags (*P. melanoleucos*) was seen. On 26/8/54 the number of nests of Pied Shags had increased to 54. In one of the large willows 18 Little River Shags occupied most of one side, but among the Pied Shags on the other side a pair of Little Black Shags was nesting.

D.M.

Miss J. Goodwin writes:

From the beginning of May till the end of September 1954 I had occasion to stay on the northern shore of Lake Pupuke, Takapuna, this giving me an excellent opportunity of observing the colony of Pied (*Phalacrocorax varius*) and White-throated Shags (*P. melanoleucos brevirostris*) which breed there; also the Black (*P. carbo*) and Little Black Shags (*P. sulcirostris*) which come in regularly at dusk to roost. The colony is believed to be some four years old. About eight willows along the northern and western shores of the lake are occupied by those species breeding there and many others are being used as roosts; I had four trees of nesting birds to observe, and three which were crowded each evening by shags coming in for the night. The willows are for the most part the worse for wear because of the rise in the level of the lake and the strong excreta of the shags which kills nearly all the foliage. The high level of the lake, although it will in time cause the trees to die off altogether, has, however, been something of a blessing to the shags in that the five feet or so of water round each tree acts as an excellent deterrent to the raids of small boys and other predators.

At the beginning of May I counted, in the four trees I could see, 42 nests, and at the beginning of September 56 nests, all occupied and containing half and three-quarter grown chicks, two in most nests, but also some with three and four young. By the middle of June nearly all the youngsters had left their nests and the parent birds were bringing in fresh nesting material with which to reinforce their rather untidy and bulky nests. Whenever the parents left the nest unattended for a day or so, that nest was quickly demolished by neighbouring shags, which pulled it to pieces and carried the material off to add to their own nests. Some two hundred yards away from the nesting colony was a large willow standing a little further inland than the others, which, during the day, was occupied by a dozen or so shags resting and preening, while at dusk dozens of birds would fly in from all directions and the tree would soon be laden with Black, Pied and White-throated shags, immature birds which had recently left the nest, and adults. The most numerous in this 'dormitory' tree were the Pied and then the White-throated; there were never more than three or four pairs of the Black shags and they kept very much to their one particular branch; if they attempted to land in amongst the Pied they were quickly sent away with loud and indignant croaks and squawks. Yet another, smaller willow about 20 yards from one of the nesting trees was occupied every night by Little Black Shags.

This species was rarely seen during the day, and seemed much quicker in its movements and altogether shyer and more watchful than any of the others. It is interesting to note that by mid-September only one or two individuals of the Little Black shags would arrive in the evening, the others having presumably gone elsewhere to breed.

Only a very small number of shags appeared to forage for food in Lake Pupuke. They seemed to play and squabble on the water and to dive for long strips of weed which they carried off to their nests, but nearly all food seemed to be collected elsewhere. I repeatedly saw birds come in from the direction of the East Coast beaches and the Waitemata Harbour, alight at the nest and almost immediately start to feed their family. Very often, too, I saw a parent bird fly in with a greatly distended neck and gular pouch, as if full of freshly collected food. It would sit a few feet away from the nest all hunched up while the food was part-digested. During this time the young birds would stretch up out of the nest and 'chirrup' without ceasing, getting more and more agitated until finally the parent shag hops over to the nest and the chicks eagerly plunge their beaks, and almost their heads too, down the parental throat for a pre-digested meal.

From the end of July onwards, nesting and courting activities greatly increased in intensity. The Pied and White-throated shags began coming right in to the sections bordering the lake and they would land in the top of a nearby *Grevillea* tree and break off branchlets which they carried off and added to their nests. At this time too there was much courting and displaying, one incident in particular being most interesting. Three of the trees in question contained 42 nests, all occupied by Pied shags; one tree, however, also contained 14 nests of White-throated, where it was interesting to see examples of the polymorphism of that species, the white-breasted phase being the more numerous. One morning I heard a sound new to me, a muffled sound, something between a low bark and a coo; on investigating I saw two pairs of the White-throated Shags engaged in a most curious performance. Seated on a branch near their nests, with their black crests and white cheek feathers puffed out, they were putting their heads right back on their backs, bringing them slowly forward till they were level with their chests, then with a rapid jerk their heads were swung under their feet; a hesitation, and then the head would go up and back and then the movement would be repeated again. As the head was brought down the gular pouch would inflate and when the head was back it would deflate, the whole being accompanied by low urgent cooings. This went on for over 15 minutes and acted as a very strong 'releaser' affecting every pair of White-throated Shags in that tree. The reaction of the Pied Shags during this performance was most interesting. They were only a few feet away from the excited White-throated Shags, but appeared to be completely unmoved; they looked on, but seemed quite disinterested, and presumably they were at the same stage in their breeding cycle. It would be interesting to know if it is the normal thing in mixed nesting colonies of other congeneric species that behaviour acting as a releaser among individuals of one species should not act as a releaser with individuals of another.

Apart from the cooing sound made by the White-throated and Little Pied Shags when courting, and a low croak when alarmed, I never once heard this species make anything like the noise the Pied Shags made. When the Pied Shags indulged in displays and courtship, they put their heads right back on their rumps, inflated their pouches and gave vent to loud yaffling guffaws and high-pitched croakings; then as the head came forward, so the pouch deflated and much vigorous head-shaking took place with both birds sometimes entwining their necks to do so, this being accompanied by small choking sounds. The Pied Shags were certainly by far the noisiest of all the shags on the lake, and the most quarrelsome; often their clamour would continue through the night. The young shags of both species, up to the time of leaving their nests, made the same sounds when asking for food.

It was interesting, too, to watch the reaction of the young chicks when they were alone and unattended in the nest. While only a week or two old they would lie low and quiet in the nest, and although there were adult birds coming and going and feeding other families all around them, they reacted not at all. The moment, however, that the parent bird arrived, while it was still circling the tree preparatory to landing, the little ones would stretch up and wave their heads about, uttering their incessant 'chirping' food cries.

There was an outstandingly handsome pair of Pied Shags which one day arrived and took possession of a branch. They sat there displaying the greatest affection for each other, rarely spending more than half an hour apart. After three weeks they decided to build a nest. The hen crouched down into brooding position while the nest consisted of only a few rough twigs, the cock worked hard bringing in material which he then passed to the hen who tucked it in in the right place. Very often he would fly in with an enormous branch and have the greatest difficulty in getting it to the nest at all — breaking pieces off it, knocking other birds on the head with it, and very often having to let it drop into the water after all. The nest took three days to build and the hen began to sit on about the fifth day.

J. GOODWIN

On 22/5/55, 85 occupied nests of Pied Shags were counted. Most of these were in six willow trees, but one fallen pine held eight nests, only a few feet above the water. This dead pine is evidently not so desirable a building site as the willows; for while most of the other nests contained well-grown young, frequently four in a nest, the tenants of the pine tree had nested considerably later and were still incubating eggs.

On arriving at the lake we had immediately noticed a Little Black Shag (*P. sulcirostris*) in flight; but we had not expected to find them breeding. These rather rare shags have been recorded in the suburbs of Auckland before, especially at Orakei Basin in winter, when it was supposed that they were visitors from the lakes of the lower Waikato where they are known to breed. In the willow tree which contained the largest number (26) of Pied Shags' nests there were also four pairs of Little Black Shags occupying nests. In two of these there were well-grown young; but judged by the behaviour of the adults, the other two nests, which were the highest nests in the tree, held small chicks or eggs near hatching. The emerald green eye of the adult is a vivid feature easily seen when the bird is at the nest. No species of shag other than Big Pied and Little Black was seen on L. Pupuke during this afternoon visit. However, a few miles away at the dams of the Colonial Sugar Refining Company at Chelsea, 14 Little Pied and 20 White-throated Shags were counted towards dusk, and others were still coming in to roost. The great increase in the Pied Shags at L. Pupuke may have upset the roosting of the smaller species there, as described above by Miss Goodwin.

MR & MRS J. PRICKETT, R.B.S.

On 14/8/55 Pied Shags were occupying 42 nests in eight different trees. Most nests contained well-grown young; and not more than three pairs were incubating eggs. The autumn breeding when 85 occupied nests had been counted had clearly been successful, for scores of young shags were swimming or sitting on a variety of perches. Altogether there were at least 150 adult and immature Pied Shags at the lake, excluding nestlings.

No Little Black Shags were seen at nests; but two were sitting in the tree in which four pairs had nests in May and where 16 pairs of Pied Shags now had nests as against 26 in May. Other Little Black Shags were seen in flight, once nine together.

Little Shags were scarce, only three of the white-throated phase being seen.

J.C.D., R.B.S.

9/10/55. The composition of the shaggery is now very different. There are still about 40 pairs of Pied Shags. Breeding is at all stages—nest-building, eggs, chicks, medium and big young, but few of the last. There were not nearly as many juveniles at the flying stage on the lake today as on August 4. The fallen pine is still being used as a nesting site, although the three nests on it are within a few feet of the water.

At least 12 Little Black Shags were sitting in the willows where they breed, but none was at a nest.

Little Shags have now moved in and are breeding in strength. They do not appear to be over-awed by the much larger Pied Shags; for of 38 nests counted, 18 were in the big willow much favoured by the Pied and Little Black Shags, 16 were in two other willows dominated by Pied Shags, and only four were apart in low bushy willows, which are not used by the heavier shags. Most of the nests of these Little Shags were at the egg stage; a few held very small young.

A single immature Black Shag (*P. carbo*) was present.

N. MACDONALD, A. C. HIPWELL, R.B.S.

It should here be mentioned that the traditional breeding place of Little Shags in Auckland is at Western Springs; but it was known that the willows in which most of the nests have been built in the past were dead or dying. Accordingly on 6/11/55 a visit was paid to Western Springs to find out if the colony still existed and if there were any grounds for assuming that

Western Springs had been abandoned in favour of Pupuke. However, despite a lack of robust nesting trees, the colony was still flourishing. More than sixty birds were present and 25 nests were counted on the island, on which there are now no big trees growing. Most of the nests were within three feet of the ground, some in bent and flattened solanum shrubs, others resting on rushes and scarcely higher than the nests of the Black Swans which also use the island. With most of the Little Shags it was about hatching time. A few hybrids with mottled breasts were present.

J.C.D., R.B.S.

12/11/55. The numbers of Pied Shags at Pupuke are much the same as in October. Young are at various stages and no nests appear to have eggs.

Some Little Black Shags are nesting again. Two new nests, probably containing eggs, have been built in the big willow where they were nesting in May. Away from the breeding trees at least 12 Little Black Shags were resting. Some of these may be the product of the autumn nesting.

A few more nests of Little Shags have been added in the bushy willows. In the main colony young with purple-pink faces are visible in nearly every nest. Birds of the pied phase form a high proportion, perhaps 50%, of the Little Shags. No pairings of birds of the white-throated and pied phases could be found at those nests where the two adults were present. Three mottled 'hybrids' were seen.

R.B.S.

28/4/56. There is great activity among the Pied Shags, of which 86 pairs have nests in eight willows. This is the biggest count so far, and is comparable with the 85 of May 1955. The half of one willow at one end of the colony which last October was wholly occupied by Little Shags is now crowded with the nests of the bigger species. Breeding as usual is at various stages. Many nests hold well-grown young, some near fledging; a few nests hold chicks; some birds appear to be brooding eggs.

The number of Little Black Shags present exceeded all previous counts. At least 25 were sitting in the breeding trees and about 50 were already roosting at 4.15 p.m. in a 'dormitory' tree just outside the colony. It is pleasing to be able to report that this species is again nesting. One bird, apparently sitting on eggs, refused to leave its nest when other Little Black Shags took wing; and two other pairs were interested in collections of sticks. It is doubtful if the increase in the numbers of Little Black Shags at Pupuke is to be explained wholly by local breeding. There appears to be an annual influx into the Waitemata. It is likely that three years ago some of these visitors, attracted by the Pied Shags and the favourable conditions at Pupuke, stayed to nest; but as not more than four pairs have been found nesting at once, it is hardly conceivable that the eighty or so which we saw this afternoon were all locally bred.

About thirty Little Shags were sitting in the bushy willows. There was no sign of nesting.

R.B.S., J.C.D.

From the above observations some tentative deductions may be drawn and some comments made upon them.

Although the breeding of Pied Shags goes on at Pupuke all through the year there are two peak seasons of egg-laying, August-September and March-April. Rather curiously, the numbers which lay in the autumn and rear their chicks during the winter are greater than those which lay in the spring, viz.: September 1954, 54 nests; April 1955, 85 nests; September 1955, 42 nests; April 1956, 86 nests. According to Oliver (*N.Z. Birds*, 2nd edition, p. 209), eggs 'may be found from June to November'. There is no mention of autumn breeding. He also implies that a clutch of four eggs is rare. At Pupuke a nest containing four lusty youngsters is not an uncommon sight.

Little Black Shags at Pupuke also appear to have two peak periods of nesting and egg-laying, October-November and April-May, though perhaps the numbers are too small to judge. Both these periods are rather later than

those of the other shags. In early spring the extra competition provided by Little Shags increases the difficulty of finding suitable sites. In autumn the number of Pied Shags breeding reaches a maximum. At L. Waikare, in the Waikato, Fleming found Little Black Shags breeding at a date which indicated egg-laying about midsummer or soon after.

With the Little Shags breeding does not go on throughout the year. They appear to have a fairly rigid annual breeding cycle, with egg-laying at a peak in September or early October.

R.B.S., J.C.D.

## PROBABLE RECENT OCCURRENCES OF ORIENTAL DOTTEREL IN NEW ZEALAND

1

By H. R. McKENZIE

The Oriental Dotterel (*Charadrius asiaticus veredus*) is recorded by Oliver in *New Zealand Birds*, 1st edition, p. 286, as having been taken by him in 1908 on Sunday Island. This one specimen has so far been the only New Zealand record.

The two strange dotterel noted but not identified at Ruakaka, Northland, in 1956 (McKenzie, *New Zealand Bird Notes*, Vol. 2, No. 4, p. 75), may well have been Oriental Dotterel. In this paper I mentioned *Charadrius mongolus* as a possibility, but I have since studied further literature and a skin of *C. mongolus* and am satisfied that the size as described in the above-mentioned article was much too large for the latter species.

At Kaiaua, Firth of Thames, on 7/3/53, with Mr and Mrs E. H. Southerill, of Christchurch, I carefully observed a bird which I am sure was an Oriental Dotterel. Closely associated with four New Zealand Dotterel (*C. obscurus*), it was studied at leisure by telescope at about forty feet. It was a little smaller than the New Zealand Dotterel, but of much the same proportions except that the legs appeared longer. The colour of bill, head and back were similar to New Zealand Dotterel in winter plumage. The greatest difference lay in the white throat and the strong grey wash on the lower neck and all of the breast. From the definite lower edge of the grey wash the colour was a dull white. In flight it was noted that its wings appeared to be as long as those of its companions, while the body was smaller. Subsequent reference to Oliver showed that the wing measurements are the same for the two species, while the overall length of the smaller bird is 5 c.m. less. This, and the grey wash on the breast, left little doubt of the identification. It was probably a young bird. A fully adult Asiatic breeder would be expected by this date to have acquired a more advanced state of plumage.

On 12/12/54 a party of ten birds was seen at Miranda, Firth of Thames, by Misses A. J. and A. E. Goodwin, M. L. Sansom and myself. They were on the edge of a flock of about 3000 godwit and about 7000 knots on a dry area of mudflat. Taken for Golden Plover (*C. dominicus fulvus*) at first glance, they were soon seen to have different action and features. The eye was caught particularly by their extreme activity at the time of high tide, when all the other birds were resting peacefully. In many years I have never seen Golden Plover act in this manner at such a time. They ran about, fed a little and 'bobbed' in dotterel fashion. Miss Sansom had closely studied Golden Plover only the previous day at Karaka and she too was quite certain that these birds were not of that species. Telescope and binoculars used at about 80 yards enabled the party to agree upon the following notes:

Feeding actively on edge of godwit flock; dotterel action; colour of face and head similar to New Zealand Dotterel; long legs; larger than Siberian Pectoral Sandpiper (*C. acuminata*); back like Golden Plover; front (of body) dark grey and brownish; one with lower edge of pectoral colour well defined as if still having some breeding colour; flew inland; called as they rose, "k-lnk". The call was similar to that made by a flying unidentified bird