

## THE AUSTRALIAN COOT ESTABLISHED ON VIRGINIA LAKE, WANGANUI

By ROSS MACDONALD

The Australian Coot (*Fulica atra*) was first observed on Virginia Lake, Wanganui, in 1962 and breeding first recorded during 1964/65 (Notornis 13, 165).

The numbers have steadily increased to approximately 60 birds, with 12 breeding pairs raising 37 young during the 1967/68 breeding season. Observations suggest this could be near the maximum number for this lake.

During the 5½ years the species has been on this lake, observations have shown an increase in the vigour of territorial fighting, with greater demands on available nesting space, a wide variation in number of eggs laid and young raised, nest sites and construction and possibly of most importance, changes in behaviour, particularly in aggression towards other waterfowl.

### TERRITORIES

During the last two seasons (1966/68), the establishment of breeding territories started in August and nest construction by early September. By the end of September, nest construction was well advanced and sitting had begun.

Territorial fighting was very much in evidence at the start of the last breeding season, probably because of the number of birds on the lake and thus a greater demand for nesting areas.

If, in defending its territory, a Coot runs along the surface, with wings and feet moving furiously, the intruder invariably makes a rapid retreat.

At other times, the male birds swim towards each other, wings held up, giving a "large front view." If neither gives ground, a vigorous battle may ensue. One such combat was so vigorous and long, that the two birds lay, almost exhausted, on their backs, with feet gripping the chest of their opponent. They continued to peck at each other in spasms. Finally one "escaped" by swimming underwater some distance away from its opponent. During this particular battle, two other birds (possibly females) joined in briefly.

### NESTING

- Nest sites have been
- (1) amongst raupo and reeds
  - (2) attached to weeping willow branches at water level
  - (3) on lily leaves.

The first two localities have proved to be by far the most successful. In the raupo and reeds, the tops of the reeds are often "folded over" the nest.

Those constructed on lilies have not proved very successful and in fact these sites have been used mainly "in emergency," when a nest in use has been destroyed, or because of the lack of other suitable sites in the territory.

The most common material used in nest construction has been lily stems and leaves and frequently a bird has been observed dragging

a lily stem, four feet or more in length, to its nest site. Other materials such as reeds and willow roots and twigs have been used. Both male and female birds appear to take part in construction.

After the chicks have been hatched, the parents continue to build on to the present nest, or, as in most cases, construct further nests in their territory. These appear to be "roosting nests" and when disturbed from one nest, the brood will frequently make its way, as unobtrusively as possible, to the other nest. One pair, which has as its breeding tree, a huge weeping willow, has only constructed one other such nest and this was only used for a brief period. With another pair, it has not been possible to determine if "roosting nests" have been constructed, because of the dense vegetation in the nesting site.

### INCUBATION AND RAISING YOUNG

Incubation is shared by male and female. One pair, when changing over, touched beaks before actually changing places.

Although length of incubation has not been definitely recorded for every nest, observations suggest it may be between 14 to 22 days (which is slightly less than the "Field Guide" note of c. 22 days).

The number of eggs laid and chicks hatched has varied from 1 to 6 and though during previous seasons the first broods were the larger, this has not been so definite during the last breeding period.

Both adults feed the chicks, continually diving for waterweed (mainly *Elodea*). Older chicks of a family group, when diving for weed, share the weed they bring up with younger or smaller chicks. A brood may feed together, or in two groups, each with one of the parents.

Family groups did not all remain so closely-knit during the 1967/68 season as during previous years. In earlier seasons, the parents and chicks of all broods remained largely in the breeding territory until well towards the end of the season (c. April). However, young of the first brood did not always remain so close to the nesting territory during this last season (1967/68). This may possibly be because the species appears to be now firmly established on the lake. Flocking together usually starts in April and most birds join the flock/s by May. Since the species has become more firmly established on the lake, no cases of treble broods have been recorded.

Mortality *percentage* has increased as the number of nesting pairs and chicks hatched has increased, but reasons for this have not been determined. The mortality rate was approximately 40% over the 1967/68 season, but nearer 30%, during the 1966/67 season.

### ESTABLISHMENT ON OTHER LAKES

Australian Coots have been noted on nearby lakes Kaitoke and Westmere, but no evidence has been collected to show that they are breeding on these waters.

The following chart shows breeding pairs and the young raised during the last two breeding seasons.

## 1966-67 BREEDING SEASON

Breeding Pairs	FIRST BROOD		SECOND BROOD		Total hatched or (eggs laid)	Mortality	TOTAL RAISED
	Chicks hatched or eggs laid	Young raised	Chicks hatched or eggs laid	Young raised			
A	4	1	5	4	9	4	5
B	5	0	4 eggs	2	9	7	2
C	6	5	5	5	11	1	10
D	5	3			5	2	3
E	2	2			2	0	2
F	5	4	2	2	7	1	6
G	1	1	2	2	3	0	3
H	3	3			3	0	3
I	1 egg		2	2	3	1	2
Totals 9	32	19	20	17	52	16	36

## 1967-68 BREEDING SEASON

Breeding Pairs	FIRST BROOD		SECOND BROOD		Total hatched or (eggs laid)	Mortality	TOTAL RAISED
	Chicks hatched or eggs laid	Young raised	Chicks hatched or eggs laid	Young raised			
A	6	3	3	1	9	5	4
B	5 eggs nest destroyed and abandoned				5 eggs	5	
C	2 survived 4-5 days — disappeared 2nd attempt at nest abandoned				2	2	
D	5	3	5	5	10	2	8
E	5	2			5	3	2
F	3	2			3	1	2
G	2	1	4	4	6	1	5
H	2	2	3	2	5	1	4
I	3	1			3	2	1
J	2	2			2	0	2
K	1	1	3	1	4	2	2
L	1	1	6	6	7	0	7
Totals 12	32	18	24	19	61	24	37

## FEEDING

Food has consisted almost completely of waterweed (*Elodea*), though occasional birds have been seen eating young willow leaves. It is possible that small animal life is obtained from amongst the weed, but this has not been determined definitely.

During the last year, some birds have taken bread, which visitors to the lake have thrown to the ducks. One adult Coot also fed this to a chick. However, they do not appear to take very much of this food.

An interesting change in feeding behaviour was noted during the last year, when ducks were seen feeding with Coots. After the Coots dived for waterweed and brought it to the surface, Grey and Mallard Ducks frequently milled around and shared in the food. This has occurred when the adult Coots have been feeding young, but no real attempt was made by the Coots to chase the ducks away. It could not be determined definitely whether the ducks were always taking weed, or instead, small animal life brought up with the weed.

This is a contrast to the coot behaviour, when they first became established on this lake — they vigorously chased all waterfowl, except a male Paradise Duck. Aggression towards other waterfowl has gradually reduced during the last two or three seasons. In fact, during the last breeding season, aggressive action appeared to be directed more towards individuals of their own kind, than other waterfowl.



## SHORT NOTE

## REACTIONS OF BIRDS TO FALCONS

On 1/4/66 at 1525 hrs. R. E. R. Porter and P. R. Wilson saw a Falcon (*Falco novaeseelandiae*) flying 15-20 ft. above the D.S.I.R. Research Orchard, half a mile from the centre of Havelock North. Fantails, Sparrows, Whiteyes, Chaffinches, Thrushes, Blackbirds, Mynas, Hedgesparrows and Greenfinches took to trees and gave alarm calls. A flock of 30-40 Mynas gave alarm calls for about 15 minutes after the Falcon had left and two Fantails sat quietly huddled side by side on a piece of wire in a large shed for the same time. In contrast to these reactions, Harriers (*Circus approximans*) elicit much less response from the orchard birds.

Early in March 1967 at 1300 hrs. K. J. Dawson and J. Jones (pers. comm.) saw two Falcons attack three or four Keas on the open rock and snowgrass tops at about 5500 ft. between the East Matukituki and Corner Burn (Lake Wanaka). The first thing they saw was a Kea reeling back, flapping and squawking wildly after a Falcon had attacked it in mid-air. Then both Falcons attacked, flying about 50 ft. above the Keas and swooping on to them. The Keas could not evade the Falcons and, though no feathers were knocked off, they were hard pressed and hid amongst a jumble of rocks. The Falcons moved off 10-15 minutes later when their swoops failed to dislodge the Keas.

— R. E. R. PORTER

— D. G. DAWSON