

The adult birds are known for their aggressive behaviour when defending a territory or a brood. (Delacour 1954, p. 246; Wilkinson 1931, p. 88; Henry 1907, p. 171.) In addition to this the ponds probably supply a protected brooding area and brood survival is high. This is suggested by the brood survival for 22 broods at the flying stage, the average being 6 and the range from 3 to 10 per brood. Only 1 brood was seen on a river although pairs were found along the banks at intervals.

Within the study area the six nests found were all associated with trees. The habitats of the nests were:

(i) On the ground within a tall hollow tree stump at the edge of a stand of native bush and 196 yards from water.

(ii) Within a split of a decaying log in an open paddock and 450 yards from water.

(iii) In an epiphytic *Astelia* sp. 15 feet above ground in a Matipo tree (*Myrsine* sp.) and 40 yards from nearest pond.

(iv) In an open hollowed out cabbage tree (*Cordyline australis*) bole 97 yards from water.

(v) In an *Astelia* in a beech tree (*Nothofagus* sp.) about 40 feet above ground at the edge of a large stand of native bush and about $\frac{1}{4}$ mile from water.

(vi) In an *Astelia* in a Maire tree (*Mida salicifolia*) about 20 feet above ground and 90 yards from water.

Four of the six nests were within 200 yards of water and all within 450 yards.

Two other nests are on record for the North Island, one at Lake Waahi, Huntly, in tussocks (*Carex* sp.) 200 yards from water and the other at Masterton, in a hole in a bank about 7 feet directly above water.

MOULTING

During late December, January and early February, the Paradise moult their flight feathers. An individual bird is flightless for about two weeks.

Ten moulting sites were known in the study area. The area of water varied from about 0.5 acres to 20 acres and supported from 50 to 900 birds or more at any one time.

Of the 10 sites, nine have pasture around all or part of their edges, three have raupo (*Typha meulleri*) along the major length of their edge, another three have raupo present, five have trees close to their edge, all have a slope or hillside adjacent and are greater in depth than required by a bird swimming under water, a minimum of 18 inches to 2 feet. The hillside allows the birds to maintain a careful lookout while feeding or resting for any sign of disturbance and it also aids in their return to the water. The birds form rafts on the water and the continual movement allows for estimation only of numbers. In January 1962, 800-900 birds were in a raft on $3\frac{1}{2}$ acres of water and 40-50 on $1\frac{1}{2}$ acres. Other sites may occur in the study area where only a few birds moult on each.

SUMMARY OF CRITICAL FACTORS FOR FEEDING, BREEDING AND MOULTING

It may be suggested tentatively that the following conditions are critical:

(i) Young herbaceous growth in close proximity to water for preferred feeding areas.