FEEDING STATIONS AND FOOD OF THE NORTH ISLAND SADDLEBACK IN NOVEMBER

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INTRODUCTION

The party which visited Hen Island from 9/11/65 to 19/11/65 to study the breeding behaviour of the North Island Saddleback (*Philesturnus carunculatus rufusater*) as recorded by Blackburn (1) had a second main objective in the recording of feeding stations and food of the species in the month of November. Similar observations have already been published by Merton (2) for the month of January, and by Atkinson (3) & (4) for the months of May and August. Thus the records for November complete a year's cycle. All members of the party contributed substantially to the records, so that the total time of recorded feeding is some 28 hrs. 31 mins., compared with totals of under 7 hours for each of the other three months.

FOODS

As in all earlier records, insects were observed to be the main food of the species. November is not a good month for berries and fruits, so that the records of these being taken by the birds are extremely sparse, and there were no records of nectar as a food; even the earlier records relating to nectar are open to question. But there is no reason to doubt the statement of Reischek (5) that he found the birds feeding mainly on the nectar of flax (*Phormium tenax*) in December, 1883. There are areas of flax on Hen Island, but no observations have since been made in December, when it is in bloom.

Table 1: Foods of Saddleback, November 1965

Food	No. of Observations
Caterpillars	14
Spiders	1
Weta	1
Leaf Scale	3
Berries of Supplejack	2
Berries of Lawyer (green)	1
Total	22

Caterpillars are, of course, more easily recognizable as the type of food than are other insects, but there is no doubt that they form a substantial part of the birds' diet. A large number of observations were made of birds closely searching the rolled-up leaves of mahoe (*Melicytus ramiflorus*) still adhering to the trees. These were either examined *in situ*, or taken to a nearby branch, and held by one foot, and almost invariably food was extracted. A scale on the green mahoe leaves was seen to be taken either with the point of the bill, or more frequently by using the bill sideways.

FEEDING STATIONS

Although the various types of forest in which feeding observations were made were not classified sufficiently to enable data to be given on the lines set out by Atkinson, the kanuka forest provided the greatest percentage of observations, and the puriri-kanuka and pohutukawa-puriri forests were found to have greater significance than as recorded by Atkinson for the month of May. No birds were observed in the taraire forest.

Table 2: Feeding Stations, November 1965

Feeding Stations	No. of Observations	% of Total
Aerial feeding	0	0
Canopy foliage (excl. tufted crowns)	47	16
Foliage of cabbage trees, nikau, astelias, etc.	10	4
Understorey foliage	47	16
Dead foliage	21	8
Fruit	3	1
Bark of branches and twigs	26	9
Dead branches	12	4
Holes	21	8
Boles	35	12
Ground	64	22
Total	286	100

Nearly all observations were timed, and the extensive nature of these should give a fairly accurate assessment of the time spent by the birds in the various situations. A comparison is made in Table 3 with the January, May, and August records, from which it will be seen that the canopy and understorey assume much greater importance, due probably to the presence of more larval forms of insect life at this time.

Table 3: Times spent on Feeding Stations

Feeding Stations	No. of birds observed	Total time of observations (mins)	Percentage of total November	Percentage in January	Percentage in May	Percentage in August
Foliage of canopy and understorey	96	938	55	17	34	24
Bark of branches and boles, dead twigs	38	236	14	36	34*	43
On ground	67	537	31	47	32	33
Totals	201	1711	100	100	100	100

* Includes lower foliage

From the above table it will be seen how important the ground litter is as a source of food for the North Island race of the species, for the bird spends approximately one third of its feeding time on the ground. This is probably a factor contributing to the complete success of transfers of Saddleback to Middle Chicken and Red Mercury Islands, both of which have areas of abundant litter.

The number of timed observations in the records for January, May, and August varied between 35 and 54, compared with 201 for November, so that a completely accurate picture may not be given by the above table.

BEHAVIOUR

In November, some pairs had dependent fledged young, and with others the young had become, or were becoming independent. There were thus frequent observations of males driving immature birds from their territories. Some birds were building a second nest, or had already done so. The strongly territorial behaviour which has been a feature of nearly all Saddleback records, appeared to have weakened in some pairs, for on two occasions pairs which had intruded into territories were tolerated by the resident pair, and four birds fed amicably in a group for considerable periods. On the other hand, there were several observations in which threat display and calling by the male drove off the intruders. In one instance, two pairs were in contact for 20 minutes, during which time the two males fought three or four times, coming into physical contact on each occasion. The resident birds, with a dependent fledgling, were left in possession. There were other instances, when display and calling having failed to drive away the intruders, the male flew at the intruding male, without making actual contact. Courtship feeding and feeding of dependent young were much in evidence, as was the usual Fantail association, this being recorded in 16 observations, the longest period of continuous association being 41 minutes. Seven instances of challenges or attacks by Bellbirds on feeding Saddlebacks were recorded, the Saddleback giving way on three occasions, but in the others, threat display or pursuit resulted in the retreat of the Bellbird. Following such display, the male gave a flute-like cadence of two notes.

DISCUSSION

The difficulty of identifying the insect food taken cannot easily be overcome. It could be safely assumed that from the dead mahoe leaves the prey was always a caterpillar, and this assumption would give some 100 or more observations under this heading in Table 1. Although members of the party did, in general, concentrate on trying to identify the food taken, the results are negligible. There were several records such as "white grubs from a rotting log," but it would have been somewhat out of character for the observer to have driven off the bird, and collected the grubs for later identification. Sampling of the various feeding stations as suggested by Atkinson would provide valuable information.

A comparison of feeding stations recorded in the four series of observations is given in Table 4, in order to complete the comparative table given by Atkinson in 1966.

Table 4: Comparison of Feeding Stations

Feeding Stations	Percentage of Observations			
	Jan. 1964	May 1965	Aug. 1963	Nov. 1965
Canopy foliage	30	13	17	20
Understorey foliage	5	3	6	16
Dead foliage	5	4	8	8
Fruit	14	8	1	1
Branches, limbs, twigs	18	34	29	9
Branch axils, holes, dead branches	5	14	4	12
Trunks	5	4	11	12
Ground	18	15	21	22
Other stations	0	5	3	0
	100	100	100	100
	88 obs.	242 obs.	205 obs.	286 obs.
	28 days	10 days	10 days	10 days

While the percentage of ground feeding observations remains fairly constant, a trend towards feeding in the canopy and understorey during the warmer months, when larval and flying insect life would be more abundant there, is apparent. Generally this trend appears to be away from searching the branches, limbs, and twigs for pupae, etc., which would appear to provide a major proportion of food in the colder months.

REFERENCES

1. BLACKBURN, A. (1967): Notes on Breeding Behaviour of N.I. Saddleback, Notornis XIII, 185-188.
2. MERTON, D. V. (1966): Feeding Stations, Food and Behaviour of N.I. Saddleback on Hen I. in Jan., Notornis XIII, 3-6.
3. ATKINSON, I. A. E. (1966): **ibid** 7-11.
4. (1964): Notornis XI, 93-97.
5. REISCHEK, J. (1886): Trans. N.Z. Inst. 19, 188-189.

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LETTER

Sir — In your review of *Dusky Bay* in the March issue, you postulate that the Black Rat may have caused the Tui to become so scarce in Fiordland; but I think the reason must be sought elsewhere, perhaps in the later invasion of Fiordland by mustelids. That the Tui is capable of defending itself and its nest against the Black Rat is amply demonstrated at Big South Cape Island. When I visited the island in February, 1965, two years after the tragic invasion of Black Rats, many native species had already been exterminated, and others, except for the Tui and Weka, reduced almost to the point of extinction. Of the Tui I then said (Notornis XII, 199) "both adults and birds of the year were extremely abundant. The Tui, being an aggressive bird, is probably a match for the rat during the crucial nesting season." To describe them as extremely abundant gives little idea of the picture, for they were literally in hordes in all suitable habitat, with birds of the year seemingly in greater numbers than adults.

—A. BLACKBURN