FOODS AND FEEDING BEHAVIOUR OF SOME FOREST BIRDS ON HEN ISLAND IN MAY

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INTRODUCTION

These observations were made during the period 11th to 21st May, 1965, on Hen Island, off the east coast of Northland Peninsula, and were obtained during a food and feeding station study of the North Island Saddleback *(Philesturnus carunculatus rufusater),* (Atkinson, 1966a). Little is known of the food or feeding stations of most native forest-inhabiting birds, and this paper may help to stimulate interest in further work on the subject.

A great many more feeding observations, made at different seasons on Hen Island are required, before it will be possible to tell whether an overlap exists between the feeding requirements of saddleback and other species.

The Wildlife Branch team, incorporating members from the Ornithological Society of New Zealand and officers of the Department of Scientific and Industrial Research consisted of the following members: Pamela J. Atkinson, Angela M. Campbell, Messrs. I. A. E. and K. C. Atkinson, D. J. Campbell, A. M. C. Davis, D. R. Ellis, J. L. Kendrick, N. J. Ledgard, R. H. Sibson and the writer, all of whom contributed observations.

The method of recording is similar to that used previously when studying saddlebacks (see studies by Atkinson 1964 & 1966a, Merton 1966 and Blackburn in press) and is described by Atkinson (1966b). It is a modification of the method developed by Gibb (1961) to sample bird feeding stations in the Kaingaroa State forest.

More than half of the observations were made within a quarter of a mile of our camp at Dragon's Mouth Cove, in pohutukawa *(Metrosideros excelsa)*, kanuka *(Leptospermum ericoides)*, pohutukawa-puriri *(Vitex lucens)* or taraire *(Beilschmiedia taraire)*-tawa *(B. tawa)* forest types.

Both Bellbirds *(Anthornis m. melanura)* and Tui *(Prosthemadera n. novaeseelandiae)* are particularly numerous on Hen Island and are the most common passerines present (see Turbott 1940 & Skegg 1964), but White-eye *(Zosterops lateralis)* numbers tend to fluctuate, often being regarded as low, although during our visit there was a moderate number.

FOODS

A total of 157 observations involving five species of passerine and the pigeon *(Hemiphaga n. novaeseelandiae)* were made in which foods could be identified. By far the greater number of observations were of birds feeding from "flowers," presumably upon ncetar, and it is probable that some of those recorded in "live foliage" may have in fact, also been feeding from flowers. It is not always possible to determine what a bird is feeding upon high in a dense forest canopy.

TABLE 1 — Foods of Various Forest Birds on Hen Is. — May 1965

	No. of Observations						
	Tui	Bellbird	White-eye	Fantail	Tit	Pigeon	Total
Insects (unidentified)		3	7	14	6		30
Diptera spp.		1					1
Large Diptera spp.	1						1
Scale insects		5					5
Nectar of Puriri	43	20					63
Karaka *(Corynocarpus laevigata)*	1	1					2
Supplejack *(Ripogonum scandens)*	1						1
Kohekohe *(Dysoxylum spectabile)*	20	22					42
Rhabdothamnus solandri		1					1
Green fruit of Houpara *(Pseudopanax lessonii)*	1	1					2
Ripe fruit of Inkweed *(Phytolacca octandra)*			1				1
Tawapou *(Planchonella novo-zelandica)*						5	5
Sap from fissure in karaka bark		1					1
Sap from fissure in Whau *(Entelea arborescens)* bark		1					1
Water		1					1
TOTALS	67	57	8	14	6	5	157

FEEDING BEHAVIOUR

A Fantail *(Rhipidura fuliginosa placabilis)* was seen feeding in the upper understorey of a pohutukawa forest and while perched, took an insect from the twig it was perched on. Another alighted on the litter of the forest floor and captured an insect from amongst leaves on the ground. According to Oliver (1955) food of the fantail consists almost entirely of small insects, which are taken on the wing.

The feeding observations of Pied Tits *(Petroica macrocephala toitoi)* were made of a male which frequented the chopping block at our camp. This bird would watch patiently for a grub to be exposed then dart down to claim it, often within a few feet of the axeman. It would then retreat to a safer distance before dealing with its morsel, after which it would return to survey proceedings once more. On one occasion the tit, which had possession of a large white grub, was pursued unsuccessfully by a Bellbird for some 20 yards.

Bellbird

Of a total of 96 feeding observations obtained, 57 were timed and involved approximately 2,186 minutes (see Tables II & III).

Both puriri and kohekohe were in full bloom and Bellbirds made good use of this food source. Insects appear to be an important food. Three instances of aerial feeding were noted. A Bellbird was recorded

hovering 10 to 15 feet above the ground, feeding on insects it disturbed from a karaka trunk and another was watched "hawking" insects in flight within 6 inches of a low pohutukawa canopy. One was seen in pursuit of an insect in flight, the chase ending when the bird overtook the insect after following its descending path 40 feet onto the ground. One instance of feeding on the ground was recorded when a bird captured an insect from the rock on which it was perched. Another bird fed briefly amongst litter.

Twenty-two observations were made of Bellbirds apparently hunting for insects on kanuka bark, the birds often ascending the tree trunks in a spiral. Two were seen taking insects on karaka bark. An observation was recorded of a bellbird feeding from a hole, and another from a fissure, in a puriri trunk. Of the birds feeding on insects in live foliage 11 were in kanuka where caterpillars were moderately plentiful, 5 were in karaka and 3 in five-finger *(Pseudopanax arboreum).*

Of interest are the two observations where Bellbirds were observed apparently drinking the sap exuded from wounds in bark. The first was when a bird was seen dabbing its tongue against the sap moistened bark of a whau 3 ft. above the ground and the second was of a bird 10ft. up a young karaka trunk holding on in the manner of a woodpecker as it dabbed its tongue into the fresh sap flowing from a small fissure in the bark for over a minute. Honeydew, a sweet substance which forms on the bark of some trees, and is a valuable food of honeyeaters in southern New Zealand, has not been recorded on Hen Island. There was a single observation of drinking, when, after a shower, a bird in the canopy was seen to take a drop of water from the tip of a kohekohe leaf.

Fruit does not seem to be a significant source of food during May, the only observation being that of a bird picking, and endeavouring three times to swallow, houpara berries. Apparently they were too green or too large as they were dropped after each attempt.

TABLE II — Feeding Stations of Bellbirds on Hen Is. — May 1965

	No. of Observations	% of Total
Aerial Feeding: Above canopy	1	1
Below canopy	2	2
Live foliage of canopy (excluding tufted crowns and epiphytes)	13	14
Live foliage of lower branches and understorey	2	2
Flowers	44	46
Fruit	1	1
Twigs, living and dead	13	14
Holes and fissures	3	3
Bark of branches and limbs	10	10
Bark of trunks	5	5
Ground	2	2
TOTAL	96	100

TABLE III — Times Spent by Bellbirds in Three Groups of Feeding Stations on Hen Island in May 1965

	No. of Observations	Total time of observations (minutes)	% of Total
In foliage	32	1539	70
Flowers	4	23	1
Branches and Boles	21	624	29
TOTAL	57	2186	100

Tui

Ninety-three feeding station observations were recorded, 58 of which were timed, involving a total of 964 minutes. As can be seen by tables I, IV & V, Tui appeared entirely dependent upon nectar from puriri and kohekohe. At this time of year neither insects nor fruit appear to be important foods. However, three Tui were seen hunting insects in fivefinger foliage, one each in karaka and kanuka foliage and one on kanuka bark.

One instance of aerial feeding was noted when a Tui chased and caught a large fly, six feet above a low coastal pohutukawa canopy.

TABLE IX — Feeding Stations of Tui on Hen Is. — May 1965

	No. of Observations	% of Total
Aerial feeding: Above canopy	1	1
Live foliage of canopy (excluding tufted crowns & epiphytes)	22	24
Live foliage of lower branches and understorey	1	1
Flowers	60	65
Fruit	1	1
Twigs, living and dead	3	3
Bark of branches and limbs	5	5
TOTAL	93	100

TABLE V — Times Spent by Tui in Three Groups of Feeding Stations on Hen Island in May 1965

	No. of Observations	Total time of Observations (minutes)	% of Total
Flowers	53	936	97
In foliage	3	21	2
Branches and Boles	2	7	1
TOTAL	58	964	100

White-eye

A total of 56 feeding station observations were obtained, 55 of which were timed and involved 114 minutes. All these were of birds feeding from foliage or fine twigs. White-eyes at this time of year tended to move through the forest canopy in flocks of fifteen or more individuals. In seven instances, where positive identification could be

made, food consisted of insects and on one occasion fruit. Thirty observations of birds feeding in kanuka foliage were recorded and thirteen in *Coprosma macrocarpa*. Two were seen feeding among fine twigs of hangehange *(Geniostoma ligustrifolium)*.

TABLE VI — Feeding Stations of White-eye on Hen Island — May 1965

Feeding Station	No. of Observations	% of Total
Live foliage of canopy	33	59
Live foliage of lower branches and understorey	15	27
Twigs, living and dead	8	14
TOTAL	56	100

DISCUSSION

These observations suggest that during May, competition for nectar might occur between the two honeyeaters although nectar may be so abundant at this time that competition is not operative.

Saddlebacks, as shown by Atkinson and Campbell (1966), are largely insectivorous and cover a very wide range of feeding stations within the forest; one of the more important being the ground. This station seems hardly utilized by other species examined here. Insects obtained over a less varied range of feeding stations seem to constitute an important part of the Bellbird's diet during May.

TABLE VII — Comparison of Feeding Stations used by Four Species of Passerine on Hen Island During 10 Days in May

Feeding Stations	% of Observations			
	*Saddleback	Bellbird	Tui	White-eye
Aerial feeding	0	3	1	0
Live foliage of vegetation canopy (excluding tufted crowns)	12	14	24	59
Live foliage of cabbage tree and epiphytic collospermum	1	0	0	0
Live foliage of lower branches and understorey	3	2	1	27
Dead foliage and vine stems	4	0	0	0
Flowers	4	46	65	0
Flower buds	1	0	0	0
Fruit	8	1	1	0
Twigs (living and dead)	10	14	3	14
Bark of branches and limbs	24	10	5	0
Branch axils, fissures, holes	7	3	0	0
Dead branches and limbs	7	0	0	0
Bark of trunks	4	5	0	0
Ground	15	2	0	0
	100	100	100	100
Number of Observations	242	96	93	56

* Saddleback data from Atkinson (1966a)

These results are far from conclusive and a mere beginning has been made in what could develop into a most useful and interesting ecological study. Many more observations taken throughout the year are needed before clear patterns can be expected to emerge.

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SHORT NOTE

FIRST RECORD OF A TEREK SANDPIPER FROM THE SOUTH ISLAND

It is with a pleasant anticipation of excitement one always approaches the seal colony at Kaikoura. The scene is beautiful: at low tide the great rocky outcrop on which the seals peer at intruders; the rocky shelf covered with pools where herons probe and little flocks of Turnstones fossick; the blue lagoon fringed with sunlit yellow cotula, contrasting with the pink-legged nesting Stilts; the narrow ridge of salt-washed and startlingly white pebbles; and finally across the breaking surf, the snow-clad Kaikoura Mountains. Such was the scene on 5/10/66, and as usual the area did not fail me. While I was examining a flock of 40 or 50 Turnstones *(A. interpres)* in all plumages roosting on the white pebbles, a slightly smaller and slimmer bird caught my eye by the incessant bobbing of its tail, indeed the hind part of its body. Its overall greyness, white below, immediately marked it as different. As its strongly upcurved black bill came into view its rarity was confirmed and eventually its full beauty was revealed as the golden-yellow legs, with no trace of green, became visible.

It is clear the bird was a Terek Sandpiper *(T. cinerea)*, the record extending its known southern range considerably. A very full description was taken on the spot. This was later compared with Witherby *et al.* (Handbook of British Birds) and other books and found to agree in all respects with that of a bird in winter plumage.

— J. M. CUNNINGHAM