

noticed to feed them in the early stages as was noted in the previous season. In the later nestling stage, however, he joined in general feeding, but the four young birds were not as plump as the two of the previous season. The first young bird left the nest on 8th January 1965, followed by the others at intervals of a few days, until the last bird left on 21st January. By the present date (29th January), the young birds are beginning to fly, and so far have not been subject to so much rough attention from the adult birds, which their predecessors received last season.

The successful breeding of any birds kept in captivity is always a great encouragement and it is hoped that this season's four young birds will grow to healthy maturity. Of the native birds kept in the aviary, the kaka are the most interesting, particularly that a pair is now breeding, and one forgets the nuisances they sometimes create, such as cutting large holes in the netting or destroying the native parakeets' nest at breeding time.



SHORT NOTES

PREY OF A FAMILY OF NEW ZEALAND FALCONS

There is little information available on the food of the New Zealand Falcon (*Falco novaeseelandiae*) (Pl. XXIII), Oliver (1955) states that birds of many species form most of its food but that rats, mice and lizards are also taken. Guthrie-Smith (1927) considered that New Zealand Pipits were the main food although Goldfinches, Yellowhammers, Starlings and Quail were also taken.

I watched a pair of Falcons feeding two fledged young at Ngatapa, Gisborne, from 30 December, 1962, to 4 January, 1963. They were observed for 12½ hours, mainly in the early morning and late afternoon. The young had left the nest, which was not found, and spent their time perched in scattered trees on a hillside. It is not known when they became independent of their parents. The surrounding country was steep farmland with some manuka scrub and stands of remnant bush.

The young birds flew well, but did not attempt to catch prey and were observed being fed twelve times at irregular intervals, averaging approximately once an hour. Guthrie-Smith (1927) recorded that nestlings three-quarters grown were fed, on average, once every ninety minutes. On six occasions one of the young birds flew high over the valley to meet the returning parent and flew in the same direction approximately three feet below the adult until the food was dropped. The young bird turned slightly on to its side and caught the food in its talons. On other occasions it did not leave its perch until the parent was quite near. It then flew towards the adult and when only a few feet apart both banked vertically and the adult tossed the food to the young. Once the parent returned with food, perched near the young and then flew off, leaving the food. When feeding occurred in flight the young always caught the food successfully and then settled



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XXIII — Adult male New Zealand Falcon.

on the steep hillside to pluck and eat the prey. Sometimes the young bird with food was chased by the other one, but chasing also occurred at other times.

Feathers, occasional leg bones and beaks were found scattered at 34 sites on the hillside where the falcons had plucked their prey while feeding. No other predators were seen in the area although Harriers (*Circus approximans*) are present in the district. Four whole or part carcasses of birds were also found. At least 26 individual birds of eight species were identified from these feathers and carcasses (Table 1).

TABLE 1 — Prey Identified from Feathers

<i>Species</i>	<i>Total</i>	<i>Adult</i>	<i>Young</i>
Skylark <i>Alauda arvensis</i>	9	7	2
Song Thrush <i>Turdus ericetorum</i>	4 or 5	3 (1 moulting)	1 or 2
Blackbird <i>T. merula</i>	3		3 (2 fledglings, 1 fully fledged)
Greenfinch <i>Chloris chloris</i>	2	1	1
Goldfinch <i>Carduelis carduelis</i>	2	2 (1 moulting)	
Yellowhammer <i>Emberiza citrinella</i>	2	2 (1 moulting)	
House Sparrow <i>Passer domesticus</i>	3 or 4	1 male	2 or 3 adult females or young
Starling <i>Sturnus vulgaris</i>	1		1

Ten pellets (Fig. 1) examined all contained feathers and bird bones of the species identified from pluckings. The mean and extreme measurements of these pellets were: length 31.7mm. (21-42); width



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Fig. 1 — Pellets of the New Zealand Falcon showing range in size and shape.

13.9mm. (11-17) and dry weight 1.04g. (0.24-1.91). In one pellet red Goldfinch head feathers were identified but in all others the feathers were broken down to unidentifiable grey fragments. Five also contained fine insect fragments or seed, probably derived from the crop of the prey. One pellet contained fragments of at least 14 green manuka beetles (*Pyronota festiva*). These may have been derived from the crop of prey or may have been taken by the Falcon.

All the species of birds preyed on are common in the area and mostly frequent open farmland. Skylarks were taken more often than would be expected from their density in the area and they may be particularly vulnerable to a fast-flying bird of prey. Fantails (*Rhipidura fuliginosa*), Grey Warblers (*Gerygone igata*) and Silvereyes (*Zosterops lateralis*) are the common small birds of manuka scrub and bush remnants but were not taken. One of the young Falcons was mobbed by a group consisting of two Fantails, two Silvereyes, two Grey Warblers and a male Chaffinch (*Fringilla coelebs*). It sat for a minute or two before flying off with the birds following.

Young birds are generally more vulnerable to predation than adults and many of the prey taken by these Falcons were young or moulting birds. The latter may have been more vulnerable than non-moulting birds, but many birds may be in their post-breeding moult at this time of year. Of the Sparrows killed, one was half-eaten but the other two were almost intact; they may be relatively unpalatable. One uneaten juvenile Skylark was also found.

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NOTE ON THE FEEDING OF A YOUNG NEW ZEALAND FALCON

At the junction of the Snowflake Creek and the Kowhai, 15 miles west of Kaikoura township, on 20/2/65, I heard a strange plaintive call coming from some kanuka scrub, a half-dozen calls being repeated loudly every three minutes. After climbing around the hillside underneath the 20 feet tall kanuka for ten minutes without seeing the bird, it at last flew from the kanuka, and perched on a dead cabbage tree trunk only 10 feet from me. The bird was a fully grown Bush Hawk (*F. novaeseelandiae*) in immature plumage, not having the underparts streaked with dark brown. The young falcon was quite fearless of me, calling regularly during the 20 minutes the bird was nearby, in a long drawn-out plaintive cry, which was repeated about six times; one call after the other, and quite unlike the screaming chatter of the adult falcon. Suddenly the young falcon flew swiftly to the centre of the Kowhai riverbed climbing about 300 feet, where I noticed what I