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HABITATS AND FEEDING OF THE AUCKLAND ISLAND BANDED DOTTEREL (Charadrius bicinctus exilis Falla 1978) IN AUTUMN

By R. J. PIERCE

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The feeding behaviour of the Auckland Island Banded Dotterel was studied at Enderby Island for 12 days in April 1980. Up to 155 dotterels were at Derry Castle Reef, foraging along the rocky shore, frequenting several habitats from the maritime zone to the sublittoral fringe at low tide. The midlittoral zone was the source of the greatest biomass of food and may be even more important in the future as the maritime sward regenerates to taller denser vegetation. Only 15-20% of daylight time was spent foraging, with peaks at early morning, noon and evening. Amphipods up to 2 cm long were staple diet. They were obtained mainly by pecking in algae (seaweed) and in rock pools. The other prey was large also, comprising polychaetes, oligochaetes, isopods, crabs, insects and spiders. Probably most or all of the population winters at Derry Castle Reef.

INTRODUCTION

Charadrius bicinctus exilis is confined to the Auckland Islands, where it breeds only on the higher hills of Auckland, Adams and possibly Enderby Islands (Falla 1978). After breeding, most move to Enderby Island where they apparently winter mainly at Derry Castle Reef, [°]a basaltic peninsula 300 x 300 m on the north coast of the island (Fig. 1). Compared to C. b. bicinctus on the New Zealand mainland, C. b. exilis is very plump, weighing much more than C. b. bicinctus: four males collected during previous expeditions (J. A. Bartle, pers. comm.) weighed 77.5-88.7 g (average 81.8 g) compared to 53-67 g

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(57.7 g) for six male *C. b. bicinctus* weighed in November (R. J. Pierce, unpub. data). Of the conventional body measurements, only the tarsus and toe are significantly longer in *C. b. exilis.*

Only fragmentary data have been available on the ecology of the subspecies. At the invitation of the New Zealand Wildlife Service, I studied the feeding of C. b. exilis on Enderby Island on 2-13 April 1980. The aims of my study were to establish (a) which habitats were being used by dotterels at that time of year, (b) what they were eating, and (c) the feeding methods being used.

METHODS

Most work was carried out at Derry Castle Reef where all dotterel activity appeared to centre. All habitats at the reef were described qualitatively, but those most frequented by dotterels were described quantitatively also by using a transect system. In each of these habitats eight 25-metre long transects were established at 5-metre intervals and at right angles to the shore. The linear proportions of each plant species, pools, exposed rock, and so on were measured along each transect. In each habitat four or eight 10 x 10 cm quadrats were selected as representative of the feeding stations most used by dotterels, and the invertebrates in each were collected by hand or, in pools, by a small hand net with 0.5 mm mesh. On five days I recorded the habitats being used by dotterels by walking round the reef at half-hour intervals and noting the site and activity of each bird when I first saw it. Between counts and on the other days I made notes on general behaviour of the dotterels and quantitative notes on foraging. Food was recorded by direct observation - suitable for larger prey only — and by faecal analysis, which recorded the presence only of those animals with indigestible hard parts. Peck rate and search rate (number of steps per unit time) were timed in 30-second periods using a stopwatch. All observations were made through 8 x 40 binoculars at ranges of 15-50 m. The weather was mainly fine during the study period.

RESULTS

During the study period dotterel numbers remained relatively constant at 148-155 birds, with two maximum counts of 155. Only five birds were seen away from Derry Castle Reef, two in the sward to the west and three at Sandy Bay on the south coast of Enderby Island. Unlike *C. b. bicinctus* at this time of year, plumages were relatively uniform and I was unable to distinguish adults from juveniles.

HABITATS AT DERRY CASTLE REEF

Sward: A tongue of closely cropped sward occupying over 18 000 m² protruding into the middle of the peninsula (Fig. 3) from the rolling hillocks to the south. The main plants were Scirpus, Colobanthus, Tillaea and Plantago.

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FIGURE 2 — Auckland Island Banded Dotterel.

Mean high water (MHW) kelp debris: A narrow belt of tidal debris (mainly Durvillea) covering less than 1000 m².

Littoral fringe shingle: An extensive area $(11\ 000\ m^2)$ of unsorted shingle and stones.

Littoral fringe boulders: A small area (1000 m^2) of large boulders between the littoral fringe shingle and littoral fringe shelf.

Littoral fringe shelf: The most extensive habitat (30 000 m²) comprising elevated basaltic benches dotted with many saltwater pools. Vegetation was scarce and comprised mainly *Tillaea*.

Midlittoral stones: A small area (5000 m² at low tide) of stones in the south-east corner of the reef. The stones and pools were mainly covered with dense growths of *Xiphophora* and *Ulva* with fronds of *Durvillea* extending shorewards from the sublittoral fringe.

Midlittoral shelf: Flat basaltic benches covering 13 000 m² at low tide. Many small pools and extensive algal growths, especially of *Durvillea*, *Corallina*, *Gigartina* and *Porphyra*. The calm seas throughout the study period resulted in at least part of the two midlittoral zones being continuously exposed, even at high tide (Fig. 4).

Sublittoral fringe kelp: A broad belt of Durvillea fringing the reef and covering about 11 000 m^2 at low tide.



FIGURE 3 — Map of habitats at Derry Castle Reef.

INVERTEBRATE FAUNA

The invertebrate fauna of Derry Castle Reef was dominated by amphipods, which occurred in all eight habitats. The other invertebrate groups were, with preferred habitat in parentheses, polychaetes (both midlittoral habitats), oligochaetes (sward), copepods (littoral fringe shelf), isopods (both midlittoral habitats), decapods or crabs (both midlittoral habitats), insects (sward and all littoral fringe habitats),

arachnids or spiders (sward and littoral fringe shingle), molluscs (all midlittoral habitats) and echinoderms or starfish (midlittoral stones).

FEEDING BEHAVIOUR

Dotterel daily routine: From the half-hourly counts Banded Dotterels were calculated as spending 15-20% of daylight time foraging and the remaining time roosting or preening. Three peaks in foraging occurred — early morning, noon and evening (Fig. 5) with less than half the birds foraging at any one time. These peaks were regular, regardless of tidal changes during the 12 days.

Some dotterels continued feeding after dark, but the extent to which this occurred was not studied. Birds roosted in loose to moderately compact flocks in a small area of the littoral fringe shingle and to a lesser extent on the adjacent sward.

Habitats used: Banded Dotterels showed a marked preference for three habitats — midlittoral shelf, littoral fringe shelf and maritime sward, which together accounted for 83% of observations. Of these three preferred habitats, the midlittoral shelf was used all day, the littoral fringe shelf only in the early morning and evening, and the sward only in the early morning and, especially, around noon (Fig. 5). During the mid-morning and mid-afternoon almost all foraging that occurred was in the two midlittoral habitats. The changing tide level did not affect the use of these habitats.



FIGURE 4 --- Part of the midlittoral shelf at flood tide.



FIGURE 5 — Daily feeding routine of dotterels at Derry Castle Reef. The graph records average numbers feeding in each habitat.

Prey	Method of Detection	Estimate of	Importance in Diet
	- seen eaten (e) - in faeces (f)	a) Numbers **	b) Energy value = low-moderate = high
Polychaota		*	**
Oligochaeta	e	*	* *
Isopoda (Exosphaeroma)	e	*	*
Amphipoda			
Talitridae	ef	**	* *
Gammaridae	e	*	*
Oedicerotidae	f	**	**
Decapoda (Halicarcinus)	e	*	**
Insecta (Coelopidae)	e	*	*
Arachnida (Araneidae)	e	*	*

TABLE 1 - Prey of Banded Dotterels at Derry Castle Reef, April 1980.

Food: A variety of invertebrates was preyed on by dotterels at the reef, but no vegetable matter. One bird picked up a berry of Nertera depressa, a common sward food of Auckland Island Pipits (Anthus novaeseelandiae aucklandicus), but it was soon dropped. However, a specimen collected by E. G. Turbott in 1944 contained many small seeds (J. A. Bartle, pers. comm.). Table 1 lists the invertebrates recorded as dotterel prey and their importance in the diet, estimated in two ways, by their numerical importance and by their energy value.

Amphipods were the staple diet of dotterels in midlittoral and littoral fringe habitats. Only in kelp debris and sward did other invertebrates such as kelpflies and earthworms become more important. Most amphipods taken were small oedicerotids 2-5 mm long, but the largest *Talorchestia* and gammarids (often over 20 mm) were regularly caught, some taking up to 15 seconds to be consumed. *Halicarcinus* and polychaetes were larger, than the amphipods and usually took 15-30 seconds to be consumed. The isopod *Exosphaeroma* was seen taken once. The few birds that foraged along the MHW kelp debris appeared to take mainly kelpflies.

Feeding stations: In the midlittoral shelf dotterels obtained most of their food from the *Corallina* turf (Fig. 6), even though the turf occupied only about 12% of the shelf (Table 2). At low and ebb tides about 75% of pecks and probes were directed at *Corallina* turf, undoubtedly because of the high density of amphipods and other accessible prey (Table 3). Only the *Durvillea* had a density of amphipods comparable to that of the *Corallina*, but there the animals

were hidden beneath large fronds. The Durvillea was also prone to sudden wave incursions, of which dotterels, unlike Turnstones (Arenaria interpres) were noticeably wary. As the tide came in, Corallina was still the preferred feeding station, but, presumably because of flooding of part of the Corallina beds, the proportion of feeding increased in algae on or in water and in pools without algal cover (Table 2).

In the midlittoral stony shore there was almost no *Corallina*, and so dotterels foraged in the *Ulva* and *Xiphophora* beds with a significant preference for *Ulva* ($X^2 = 255.7$, 1 d.f., p < 0.001); 48% of bill actions occurred in *Ulva* beds, which covered only 7% of the midlittoral stony habitat (Table 4). The invertebrate fauna of *Ulva* in this habitat was considerably richer than in *Ulva* in the midlittoral shelf.

The preferred feeding station in the littoral fringe shelf was pools, which accounted for 58% of pecks and probes in that habitat (Table 5). The selection of pools as a source of food may have been due to the absence of the algae that support most prey in midlittoral areas. Amphipods were common in the pools and were the main or only prey. Birds tended to seek prey by walking about the perimeter of pools or in very shallow water. Presumably this behaviour reduced ripples which may disturb prey and impair visibility. Once they saw prey, however, the dotterels would walk into the pools, sometimes up to belly depth, and with their long legs, they could feed well out



FIGURE 6 — The midlittoral shelf with pools (foreground), Corallina (pale algae), Gigartina (dark algae), and Durvillea (background).

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	[\$ Use					
Feeding Station	Linear % at low tide	Low tide (n=291)	Ebb tide (n=111)	High tide (n=190)			
Durvillea	36	0.3	-	-			
Xiphophora	<1	0.3	-	-			
Pachymenia	2	-	-	-			
Gigartina	4	0.3	2.7	1.6			
Corallina	12	75.3	74.8	, 42.0			
Algae on water	2	8.6	10.8	31.1			
Ulva	1	0.6	-	-			
Codium	1	-	-	-			
Porhyra	4	-	-	-			
Rock	27	0.7	-	2.6			
Shallow pools	2	13.9	11.7	22.7			
Deep pools (> 5 cm deep)	9	-	-	-			
Total	100	100	100	100			

TABLE 2	 Dotterel 	feeding	stations	in	the	midlittoral	shelf.
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The % of the linear of transects occupied by each algal species, etc., is given in column 2. n is the number of observations of birds engaged in pecking or probing.

into the pools. Many prey were obtained from the water's edge and from crevices, especially moss-filled crevices.

In the littoral fringe shingle all pecks and probes (n=154) were directed at the shingle, whereas in the sward almost all (94.5%) of 204 observations) were directed at the grass, and the other 5.5% at debris, lichen and the bases of stones.

Feeding methods: Banded Dotterels usually forage by a "runstop-peck" or "walk-stop-peck" sequence covering moderate to large distances in a short time. Whenever a bird stops, prey is normally taken within 10-15 cm. Occasionally, the birds at Derry Castle Reef ran to larger more distant prey, such as crabs, which had obviously been seen before or early in the run. Search rates in the sward and shingle were very high, averaging 79 and 78 steps per 30 seconds respectively (n=51). In the midlittoral shelf and midlittoral stones search rates averaged only 44 and 41 steps per 30 seconds respectively (n=63), possibly reflecting the higher densities of prey there and/or a more methodical or intensive searching.

Feeding Station	n	Amphipoda	Isopoda	Halicarcinus	Polychaeta
Durvillea	4	31 (27.7)	3	-	-
Gigartina	4	4	-	-	<1
Corallina	8	28 (12.5)	2	1	3
Ulva	4	8	l	<1	1
Rock	4	3	-	-	-
Pools	4	√	\checkmark	1	\checkmark

TABLE	3	Invertebrates	of	various	feeding	stations	in	the	midlittoral	shelf.
	Avera	age numbers	per	· 100 cm	n².					

n is the number of quadrats examined per feeding station. Standard deviations are given in parentheses.

Feeding Station	Linear at low	% % use at low/ebb tide tide n=274
Durvillea	35	1.1
Xiphophora	• 35	. 13.9
Red Algae	<1	1.1
Codium	2	3.3
Ulva	7	47.8
Algae on water	б	17.5
Rock	3	3.6
Shallow pools	11	11.7
Deep pools	1	-
Total	100	100

TABLE 4 — Dotterel feeding stations in the midlittoral stones.

Pecking was the usual bill action in all habitats. Probing, the only other method used, figured prominently in only the sward and littoral fringe shelf, where it accounted for 38% and 19% of bill actions respectively. In the sward a few birds were seen foot-trembling for several minutes, apparently to disturb earthworms, many of which were caught during the process. This behaviour has been described for other New Zealand plovers (Heather 1977, Phillips 1977) but it probably occurs rarely in *C. b. bicinctus*, having been recorded once only (Dunn 1975).

Average peck rates ranged from 4.3 per 30 s in the sward and littoral fringe shelf to 5.8 per 30 s in the midlittoral stones. Peck rates in the midlittoral stones were significantly higher than in all other habitats (p < 0.01, Student's t-test), possibly because of a relatively high density and availability of prey. The difference was not a result of the birds taking only small and abundant prey because they regularly caught and consumed medium to large polychaetes, gammarids and *Halicarcinus*. A few birds when probing in crevices of the littoral fringe shelf had peck rates of up to 15 per 30 s.

Success rate was difficult to observe except at close quarters. The limited data collected suggested that about two out of three bill actions were successful in the shingle and midlittoral habitats, and about one out of two in the littoral fringe shelf and sward.

Feeding Station	Linear %	% use n=221
Bare rock	65	5.9
Crevice	8	18.1
Tillaea	<1	0.9
Debris/stones	1	3.2
Water edge		14.0
Shallow pools	7	57.9
Deep pools	19	-
Total	100	100

TABLE 5 — Dotterel feeding stations in the littoral fringe shelf.

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FIGURE 7 — Auckland Island Banded Dotterel foraging in sward.

INTERACTIONS WITH OTHER BIRDS

Although the Banded Dotterels were gregarious when roosting, they fed mainly alone and would often defend small areas for up to several hours. If few birds were foraging, defended areas were comparatively large (up to 2000 m²), but if more birds arrived the defended areas became smaller. In the sward, dotterels usually foraged in very loose flocks, but individual distances were vigorously defended.

The reef was also frequented by up to 100 Turnstones, three Grey-tailed Tattlers (*Tringa brevipes*) and one *C. b. bicinctus*. The last two species roosted with the dotterels and foraged with them along the midlittoral zone, although the lone *C. b. bicinctus* also foraged in the shingle and sward. Turnstones roosted mainly in the littoral fringe, where they often foraged at high tide, but they foraged mostly in the midlittoral zone and did not visit the sward. Banded Dotterels avoided Turnstones, which on several occasions chased them away. The midlittoral and littoral fringe prey of both species overlapped, but the Turnstones flicked through the algae to disturb their prey rather than searching by visual means only, as the dotterels were doing.

Roosting flocks of dotterels, and less often foraging dotterels, were scared into flight by Southern Great Skuas (Stercorarius skua lcnnbergi), but I did not see skuas attack any waders. Adult and juvenile Black-backed Gulls (Larus dominicanus), Red-billed Gulls (L. novaehollandiae) and Antarctic Terns (Sterna vittata) prompted a head-bowed/tail-in-air posture from foraging dotterels as they flew nearby. This posture has been recorded in the Shore Plover, Thinornis novaeseelandiae (Phillips 1977), the Black-fronted Dotterel, Charadrius melanops (B. D. Heather, pers. comm.), and Wrybill, Anarhynchus frontalis (pers. obs.), but not to my knowledge in C. b. bicinctus.

DISCUSSION

The 155 birds at Derry Castle Reef were probably close to the total population of C. b. exilis (see Falla 1978). Other members of the expedition saw no dotterels on visits to several coastal areas and islands in the Port Ross region (C. Meurck, Botany Dept, Otago University, pers. comm.). Rose Island was not visited.

On Enderby Island the dotterels were absent from other rock platforms probably because the greater area, diversity and quality of habitats at Derry Castle Reef were a major attraction. The south-east corner of the island may have been marginal dotterel habitat, as the midlittoral and littoral fringe habitats there were the most extensive of those away from the reef, and they were also backed by sward. They were used by up to 40 Turnstones. However, amphipods and polychaetes were much less common there than at the reef, which may explain why the dotterels stayed at the reef, a more profitable feeding ground.

If the dotterels were more numerous than they are, some birds would probably use the south-east corner and other parts of the Enderby Island shore. Falla (1978), in dismissing predation as a likely population control of the dotterels, commented that "...it is more likely that their low numbers reflect the limitations of a rugged terrain on which they are compelled to nest." I suggest that winter feeding also, like predation, may figure very little in population regulation. Foraging in midwinter is unlikely to differ greatly from that described here for April, except that the proportion of times spent foraging each day would be higher because of the shorter daylengths and because of increased food requirements to meet higher metabolic needs. Their large body size, together with the high energy content of their prey (Cummins & Wuycheck 1971), would still enable the dotterels to roost for most of each day during winter.

The two midlittoral habitats seemed to be the most important in terms of energy gain per unit time because here they took most of their large prey such as polychaetes, Halicarcinus, and large amphipods. On South East Island of the Chathams, the Shore Plover obtains most of its food from these habitats also, and particularly from wave-cut platforms, wider than those at Enderby Island (Phillips 1977). There, the Shore Plovers watched by Phillips in March were feeding on small and abundant prey, probably copepods, which were not taken by dotterels at Derry Castle Reef. The Shore Ployers could also catch fish at least 2-3 cm long. Most of the intertidal bullies present in the pools and under stones at Derry Castle Reef were large (over 10 cm long) and no dotterel was seen to eat any. Like C. b. exilis, the Shore Plover forages on sward (H. A. Best, pers. comm.), and the two species apparently forage at night as well as by day. I have found no records of C. b. bicinctus foraging along rocky shores, post-breeding flocks dispersing instead to tidal sandflats and mudflats around the New Zealand and Australian coasts (Hindwood & Hoskin

1954, Robertson & Dennison 1979, Pierce 1980). These habitats are missing from the Auckland Islands. The single C. b. bicinctus at Enderby Island was foraging mainly along the rocky shore, although it appeared to be taking small prey only.

The peck rate of C. b. exilis was consistently low, averaging less than ten pecks per minute. This contrasts with the widely fluctuating, but usually much higher peck rates of C. b. bicinctus (Bomford 1978) and the Wrybill (Pierce 1979), both of which prey mainly on small invertebrates. Low peck rates in C. b. bicinctus and the Wrybill are usually the result of temporary food shortages. In C. b. exilis, however, the low peck rate probably reflects the larger prey, which enables a more leisurely peck rate, and in some cases increased handling times. No data are available on C. b. bicinctus foraging intertidally, but at a coastal lagoon, Bomford (1978) found that between February and July the dotterels spent 63-96% of daylight foraging, compared with only 15-20% for C. b. exilis in April. Even with nocturnal foraging, it is unlikely that C. b. exilis spent as much time foraging over 24 hours as C. b. bicinctus did.

The sward used extensively by Banded Dotterels on Enderby Island has been induced by feral cattle and rabbits introduced last century (Taylor 1971). Cattle numbers have gradually declined owing to unfavourable grazing conditions and they will eventually die out. The situation then will probably be like that on neighbouring Rose Island. When cattle were removed from Rose Island in about 1920, Poa littorosa tussocks, no longer grazed by cattle, re-established on almost all the former sward despite the presence of rabbits (Taylor 1971). If tussocks re-established on the sward at Enderby Island, the dotterel wintering habitats would probably be limited to the midlittoral and littoral fringe — the original feeding areas before man-induced changes occurred.

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REFERENCES

REFERENCES
 BOMFORD, M. 1978. The behaviour of the Banded Dotterel Charadrius bicinctus. MSc thesis, University of Otago, Dunedin.
 CUMMINS, K. W.; WUYCHECK, J. C. 1971. Caloric equivalents for investigation in ecological energetics. Int. assoc. theor. appli. limnol. 18: 1-158.
 DUNN, P. L. 1975. Feeding and roosting patterns and foraging behaviour of four wader species at Aramoana, Dunedin. BSc Hons project, University of Otago, Dunedin.
 FALLA, R. A. 1978. Banded Dotterel at the Auckland Islands: description of a new sub-species. Notornis 25: 101-108.
 HEATHER, B. D. 1977. Foot-trembling by the Black-fronted Dotterel. Notornis 24: 1-8.
 HINDWOOD, K. A.; HOSKIN, E. S. 1954. The waders of Sydney (County of Cumberland), N.S.W. Emu 54: 217-255.

PHILLIPS, R. E. 1977. Notes on the behaviour of the New Zealand Shore Plover. Emu 77: 23-27.
PIERCE, R. J. 1979. Foods and feeding of the Wrybill Anarhynchus frontalis on its riverbed breeding grounds. Notornis 26: 1-21.
PIERCE, R. J. 1980. Seasonal and long term changes in bird numbers at Lake Wainono. Notornis 27: 21-44.
ROBERTSON, H. A.; DENNISON, M. D. 1979. Feeding and roosting behaviour of some waders at Farewell Spit. Notornis 26: 73-88.
TAYLOR, R. H. 1971. Influence of man on vegetation and wildlife at Enderby and Rose Islands, Auckland Islands. NZ J. Bot. 9: 225-268.

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BIRD AND STOAT ENCOUNTERS IN FIORDLAND

Stoats (Mustela erminea) are able to attack large birds.

On 24 January 1979, S. Field and J. Ayto (pers. comm.) heard a loud squawking behind the Martins Bay Hut, Hollyford Valley. Rushing outside they saw an adult Fiordland Crested Penguin (Eudyptes pachyrhynchus) walking with a stoat hanging from the back of its neck. The stoat had its teeth embedded and its front paws were clenching the bird's feathers. S. Field swung a stick at the stoat, which released its hold and ran off. The penguin rushed into the coastal scrub.

Occasionally birds get their own back.

In 1972, H. Nuttall (pers. comm.) saw two Western Wekas (Gallirallus australis australis) attack a stoat on the beach at Deas Cove, Thompson Sound. The stoat was crouched low on stones and the wekas were in frozen postures beside it. One weka hit the stoat a fast blow with its bill and the groggy stoat tried to move off. The birds continued to peck the stoat about the head until the animal was dead. Some of the stoat's guts were eaten by the birds.

In February 1973, R. Lavers (pers. comm.) found a freshly decapitated stoat, surrounded by a pile of Takahe (Notornis mantelli) droppings and feathers, in the Point Burn, Murchison Mountains. It appeared to the observer almost certain that a Takahe had killed the stoat.

Also in the early 1970s, A. Cragg and J. Cragg (pers. comm.) saw a New Zealand Falcon (Falco novaeseelandiae) flying with a freshly killed stoat at the Worsley River mouth, Lake Te Anau. The falcon flew low over the river with the stoat dangling in the water.

On 28 December 1979, J. Ayto (pers. comm.) saw a New Zealand Falcon swoop down and catch a stoat outside Dumpling Hut, Arthur Valley. Gripping the small stoat in its talons, the falcon flew back to its usual perch in a nearby dead beech and began to pluck its prey.

KIM MORRISON, Fiordland National Park, P.O. Box 29, Te Anau.