

# OBSERVATIONS ON THE FOOD OF FERAL CATS ON CAMPBELL ISLAND

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**SUMMARY:** Feral cats (*Felis catus*) are very scarce on Campbell Island (52°S, 169°E). Scats were collected during three summer visits and later examined. Norway rats (*Rattus norvegicus*) were much the most important prey, although birds and insects were also taken.

## INTRODUCTION

Subantarctic Campbell Island (52°S, 169°E), the southernmost of the outlying islands of New Zealand, is a Nature Reserve for the preservation of flora and fauna. It has been heavily modified by man and introduced animals and was farmed from before the turn of the century until 1931.

The date cats (*Felis catus*) were introduced to Campbell Island is not known, but they were probably brought as pets to control rats (*Rattus norvegicus*) during the sheep-farming era. Joe Timms, who lived on the island from 1912 until 1916, found no cats there (Kerr and Judd, 1978), so the first may have been taken to the island after 1916.

## METHODS

During the course of other work in the summers of 1970-71, 1975-76 and 1976-77 (Dilks and Wilson, 1979), all parts of the island were visited and a watch kept for cats and their sign. All cat scats found were collected, dried and stored for later analysis. Scats of similar age often occurred in groups of up to six; such groups were treated as single samples. Before analysis the scats were crumbled and soaked in a weak sodium hydroxide solution overnight, then rinsed in a sieve to remove dirt. Pieces of bone, insect chitin, and feathers were sorted from the remainder (predominantly rat fur) in a dish of water. Prey remains were dried and kept for identification where possible.

## RESULTS

The localities where scats were collected are shown in Figure 1. Several samples of scats were gathered from the north end of Faye Ridge (area 1) and the Col/Dumas Saddle (area 10). Most of the scats found were in short, scattered scrub (areas 1, 5, 6, 7 and 8), which presumably provides favourable hunting conditions and shelter, others were in tussock grassland (areas 2, 3, 9 and 10), and one was in open tussock and fell-field at nearly 400 m a.s.l. (area 4).

Rat remains characteristically consisted of much fur, bone fragments and teeth, while bird remains similarly comprised a few feathers and bone and beak pieces. Only small pieces of chitin and legs remained of the insects eaten.

Rats were much the commonest prey, being present in 19 out of 20 samples (Table 1). Insect remains most frequently found were parts of a common beetle (*Liochoria sorenseni*), a carabid beetle (*Oopterus* sp.) and a weevil (*Oclandius cineveus*). One scat collected near the summit of Mt Lyall consisted entirely of insect remains, but most con-

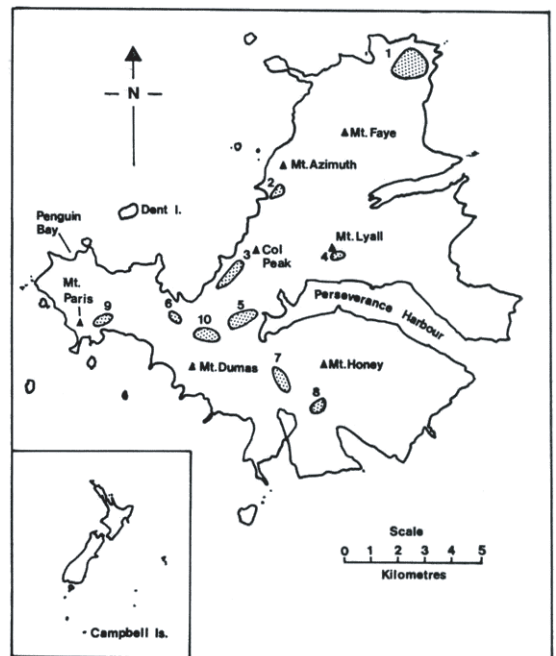


FIGURE 1. Campbell Island, showing numbered localities where cat scats were collected.

tained a few insect parts among large quantities of rat fur and bones. Bird remains occurred in seven samples.

Rats are often seen and periodically infest the huts around the island. Cats however, are rarely seen—I saw only two in 20 weeks of field work, and many of the meteorological staff spend a year on the island without seeing any. Of the smaller land birds present, redpolls (*Acanthis flammea*), silvereyes (*Zosterops lateralis*) and hedge sparrows (*Prunella modularis*) are especially common, but the formerly common burrowing petrels have almost gone from the main island—presumably because of the effects of man, rats and cats. The Campbell Island teal (*Anas aucklandica nesiotis*) and the pipit (*Anthus novaeseelandiae*) are at present known only from off-shore Dent Island.

#### DISCUSSION

Rats were the most important prey species of cats; they were present all over the island, and their remains were found in all but one of the scat samples examined. Bird remains were found in only seven samples—six of these being from Faye Ridge.

Except for one seabird, all of the vertebrate prey identified were species introduced to the island, and this reflects the present-day scarcity of indigenous species formerly found there. However, all scats were collected during December-February; the winter food may be different. On Macquarie Island, where rabbits (*Oryctolagus cuniculus*) and petrels are the main prey, Jones (1977) found that some feral cats starved to death in winter when food was scarce.

The relative contribution of cats and of Norway rats to the disappearance of burrowing seabirds on Campbell Island is not known. Norway rats have been plentiful there since at least 1868, when Armstrong (1868) recorded that "Rats are numerous and of a large size". The French expedition of 1874 (Filhol, 1885) recorded that the island was heavily burrowed by sooty shearwaters (*Puffinus griseus*), but there are now only small, scattered pockets of petrel burrows on the main island. Several petrel species still breed in good numbers on Dent Island (Robertson, 1976), and probably on other off-shore islands. However, the small island situated 600 m north-east of Penguin Bay and only 30 m off-shore had Norway rats present and no sign of petrel

TABLE 1. Occurrence of prey remains in 20 samples of cat scats from Campbell Island.

Locality*	Contents			
	Rat	Insect	Bird	
1 Faye Ridge	x	x	x	Silvereye
Faye Ridge	x	-	-	
Faye Ridge	x	x	x	
Faye Ridge	x	x	-	
Faye Ridge	x	x	x	Prion-sized seabird
Faye Ridge	x	x	x	Redpoll
Faye Ridge	x	-	x	
Faye Ridge	x	x	x	Hedgesparrow or redpoll
Faye Ridge	x	-	-	
2 Coli Azimuth saddle	x	x	x	Silvereye
3 Col Ridge South	x	x		
4 Near Lyall summit	-	x		
5 Dumas track	x	x		
6 Above NW Bay hut	x	x		
7 Track to Six Foot Lake	x	x		
8 Puiseux/Honey saddle	x	x		
9 Paris area	x	-		
10 Col/Dumas saddle	x	x		
Col/Dumas saddle	x	x		
Col/Dumas saddle	x			
No. of Samples	19	15	7	
Percentage frequency	95	60	35	

\*Numbered as on Fig. 1.

burrows or 'cats when visited in the summer of 1976-77.

The bird populations that formerly bred on Campbell Island have already been badly depleted. Feral cats are only one of the factors involved but their removal might allow the rehabilitation of some bird 'species. It is most unlikely that the extermination of cats would trigger off a major increase of rats, because there are probably too few cats to be limiting rat numbers.

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