

## THE DIET OF LITTLE OWLS ON SKOMER.

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Little Owls are supposed to feed mainly on invertebrates and small mammals but on Skokholm they preyed extensively on Storm Petrels (for which they were deported) and Paul James during his Ph D studies on Skomer also reported that they caught Storm Petrels. In 1981 Mike Alexander analysed a few pellets but did not find any bird remains and rather few mammal bones. The results of this study support the Skokholm and James experiences.

**METHODS :** During the late summer of 1988 and during the summer of 1989 most of the rock outcrops on the island and most of the field walls were searched for Little Owl roost sites and all pellets found were collected for analysis.

The pellets were individually soaked in water and gently separated with tweezers and dissection needles, the pieces were then placed onto a kitchen towel to dry and to be identified. Each pellet was searched systematically and the remains were separated into five broad categories - large beetles, small beetles, mammals, birds and "other". This system more or less followed Heaver (1986) and although undoubtedly some small invertebrates, particularly soft bodied ones such as earthworms, were missed in the analysis they were probably fairly unimportant in total diet terms.

A total of 136 pellets was examined, 61 from South Wick Ridge, 74 from the Abbysinia area and one from North Castle.

**RESULTS :** Six roost sites were found and the largest collection was made from a roost near to a nest site at South Wick Ridge (1988 only). Roosts at Banshee Corner, Marble Rocks, End Wall Ridge and Abbysinia Rocks might have belonged to just one pair, although two pairs were present here in 1989. A third site at North Castle yielded just one pellet and we were unable to locate any roost near to a known nest site in South Park.

In terms of biomass the major prey items for most of the owls were small mammals, the majority being Skomer Voles. Invertebrates accounted for a considerable part of the owls' diet, mainly large beetles, and birds (principally Storm Petrels) were the third major component (Table 1).

The diet of each pair of owls is markedly different and appears to reflect the prey potential of the geographic area near to roost sites. For example nearly all the pellets from the South Wick Ridge pair included vertebrate remains, although almost invariably with a few beetle remains, while the 1988 pellets from Abbysinia were almost totally invertebrate remains.

Obviously it is impossible within a study of this sort to know whether individual birds or pairs are responsible for the pellets found at a roost but the 1989 pellets from six sites around Abbysinia suggest that individual owls using different roosts may also specialise on different prey (Table 2).

It is also believed that a Little Owl has been responsible for killing Kittiwake chicks on the nest at Tom's House and eating just part of the body, and if the bird responsible was from the nearby Little Owl territory we failed to find any remains, so it is possible that the analysis is not totally representative of the birds' diet. The same comment could relate to Rabbit carrion which did not figure in the analysis but I suspect is under represented.

Table 1

The Prey Items in Little Owls Pellets on Skomer

Prey Species	South Wick Ridge(61 pellets)			Abbysinia 1988(23)			1989(10)		
	No of Pellets	No of Prey Items	% of Pellets	Pellets	Prey	%	Pellets	Prey	%
Skomer Vole	25	27	41.0	2	3	8.7	5	10	50
Wood Mouse	4	4	6.6	-	-	-	3	3	30
Shrew	2	2	3.3	1	1	4.3	1	1	10
Unidentified	7	7	11.5	-	-	-	2	2	20
Rabbit Carrion	5	5	8.2	-	-	-	-	-	-
All Mammals	43	45	70.6	3	3	13.0	11	16	100
Storm Petrel	12	12	19.7	-	-	-	2	2	20
Meadow Pipit	1	1	1.6	-	-	-	-	-	-
Bird Sp.	1	1	1.6	-	-	-	-	-	-
All Birds	14	14	22.9	-	-	-	-	-	-
Large Beetles	50	199	82.0	6	12	26.1	6	12	60
Small Beetles	22	91	36.1	1	2	4.3	-	-	-
Other	2	2 ?	3.3	5	?	21.7	-	-	-
All Invertebrates	53		86.9	12		52.1	-	-	-
Vegetation	3		4.9	2		8.7	-	-	-
Small Stones	2	42	3.3	12	116	52.2	-	-	-
Mollusc Shell	-		-	2		8.7	-	-	-

Note that the small stones were almost certainly picked up with earthworms and that when they were found in pellets they were generally the only contents.

Table 2

Prey Items from individual roost sites at Abbysinia (simplified analysis)

	Total No of Pellets	Small Mammals	Storm Petrels	Rabbit Carrion	Beetles	Vegetation etc.
Site 1	3	1	1	-	3 (9)	-
Site 2	4	4	-	-	4 (16)	-
Site 3	10	7	1	2	8 (18)	-
Site 4	4	3	1	-	3 (7)	-
Site 5	10	6	1 (2?)	-	6 (8)	-
Site 6	10	-	-	-	10 (lots!)	lots!

Of the 16 Storm Petrels found in the pellets at least 7 had been ringed and all were associated with the Mew Stone colony which is the largest on the island (I estimate that the colony numbers less than 100 pairs). One of these birds was at least 20 years old. The Toms House and Basin colonies appear to have declined greatly in the last 15 years and it seems likely that Little Owls have been largely responsible.

DISCUSSION : That the South Wick Ridge pellets included so many small mammal or bird remains is remarkable but the roost is near a Storm Petrel colony and the diet almost certainly reflects the opportunistic character of Little Owls. Having located the Storm Petrel colony just 100 metres from the nest site they clearly took advantage of an abundant and easy prey.

The diet composition may also be biased towards vertebrate prey items by the time of year in that the owls are more likely to take mice and voles during the summer when both are plentiful. The owls are also feeding chicks at this time so that larger food items are much more cost effective in effort and reward, but why then do some individuals concentrate on invertebrates ?

Surveys of small mammals on Skomer (e.g. Healing et al 1983) show that there are areas where few small mammals exist and of course the converse is true and some areas are ideal habitat. It seems likely, but this a subjective observation, that some of the owls have territories in the poor areas and their diet is adjusted accordingly and includes more invertebrates. What is slightly surprising though is that in the Abbysinia area the diet of the owls in 1988 and 1989 differed somewhat in that they ate more mammals in the latter year and yet a survey carried out in 1989 suggested that there were fewer voles present in 1989 than 1988, perhaps there were more mice, unfortunately we do not know.

Heavers analysis of the diet of Little Owls on Ynys Enlli also showed a difference between owls in different territories and tentatively suggested that habitat type might influence diet. This study despite its limited analysis and a smaller sample of pellets seems to suggest that individuals are more selective than the constraints imposed by their habitat for we know that there are at least as many voles in Abbysinia as in the South Wick Ridge area (Healing 1984) and Storm Petrels breed at Tom's House and the Basin area yet the Abbysinia birds used these prey sources far less than the South Wick ones. Equally, the territories of the South Wick Ridge birds appeared at least as varied as the Abbysinia birds yet they preyed on invertebrates far less.

Clearly Little Owls are very adaptive and this study suggests that some tend to specialise at least during the breeding season but a much more detailed survey would be needed to establish the year round diet. Their affect on the already small Storm Petrel colonies cannot be easily quantified but the owls are taking breeding birds and this predation must be a major cause of the petrels' decline on Skomer.

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