Food of the Morepork *(Ninox novaeseelandiae)* on Lady Alice Island (Hen and Chickens Group)

Moreporks *(Ninox novaeseelandiae)* are common on Lady Alice Island (138 ha), the largest of the Chicken Islands (35° 50'S, 174° 48'E) in the Hauraki Gulf Maritime Park. The abundance of Moreporks, of which an estimated 30 pairs were present in February 1984, has been attributed to the presence of kiore *(Rattus exulans)* (Chambers *et al.* 1955, Skegg 1964, Whitaker 1978, McCallum *et al.* 1984), which make up the bulk of the diet of Morepork chicks (Chambers *et al.* 1955).

Tuatara *(Sphenodon punctatus)* also occur on Lady Alice Island, but almost all are adults, indicating a failure of recruitment, and the density is lower than on rat-free islands (Crook 1973, 1975). Moreporks include some lizards, especially geckos, in their diet (Turbott & Buddle 1948, Chambers *et al.* 1955, Ramsay & Watt 1971), and it is possible that they could contribute to the low tuatara recruitment rate by preying on the young. To investigate this possibility, pellets cast by Moreporks were collected between August 1981 and February 1984 and analysed to determine whether tuatara remains were present and, if so, the likely impact of predation on the tuatara population. A secondary aim was to record the main foods of Moreporks, as revealed by examination of pellets.

We could not determine precisely the number of Morepork pellets collected because Moreporks cast pellets from branches where they perch and those that are composed mostly of insect remains are very friable and break easily when they hit the ground. It is exceptional to collect whole pellets, unless they consist of rodent or bird remains. Fur or feathers make a thick felting which protects the undigested bones and prevents the pellets from splitting. We estimate that about 60 pellets were examined.

Pellets were inspected under a low-magnification binocular microscope. In view of the objectives of our study, we did not attempt to identify invertebrates below ordinal level. Many larval exoskeletons were found on and near broken pellets but never inside the few whole ones, suggesting that these insect fragments may not have been disgorged by Moreporks.

No reptile remains were found in the pellets and only a few fragments of birds. Parts of a bird's foot and feathers were recovered from pellets collected in July 1982. Invertebrate remains were present in every sample of pellets and kiore remains in most. Insects, especially Coleoptera and Orthoptera, and kiore appear in the diet throughout the year. From counts of mandibles, at least 16 kiore were recovered, 6 juveniles and 10 adults.

Our findings are consistent with information previously available on Morepork diet. The bulk of their food, in frequency if not weight, consists of insects (mainly Coleoptera, Orthoptera, Lepidoptera) and spiders. Few birds are caught, except in urbanised environments, and in some places rodents are taken (Cunningham 1948, Hogg & Skegg 1961, Lindsay & Ordish 1965, Daniel 1972, Imboden 1975, Bellingham *et al.* 1982). Chambers *et al.* (1955) examined Morepork nests on Lady Alice Island in summer and noted that kiore made up the bulk of the chick diet. They also reported the frequent occurrence of large Orthoptera and the absence of birds in Morepork nests.

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House Sparrows taking insects from car radiators

Simmons (1984) and Bankier (1984) described how House Sparrows (*Passer domesticus*) have learned to search for insects trapped on car radiators in England. The same habit occurs in New Zealand, where JECF has several times since the mid-1970s seen both male and female sparrows working along a line of parked cars, flying up from the ground to between the radiator and grille, at two car parks in Lower Hutt. In the USA also, House Sparrows now search car radiators for insects in the same way at Normal, Illinois (CFT). House Sparrows were introduced successfully into New Zealand in 1859 and America in 1853, well before the introduction of cars, and so the habit must have developed independently. Recent reports are probably associated with the development of car parks and the increased time birdwatchers spend sitting in them. According to Layne & Woolfenden (1958), gray squirrels in Florida had learnt the trick by 1956, a record Dr H. Moller kindly drew to our attention.