

On Norfolk the sight of pairs pursuing nuptial flights to heights of 400-500 m was common in December of 1978 and 1979.

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THE AGE OF KERGUELEN PETRELS FOUND IN NEW ZEALAND

In 1981 occurred the greatest number of Kerguelen Petrels (*Pterodroma brevirostris*) so far recorded in one year in New Zealand (Reed 1981, Powlesland, in press). As usual, most were cast on to North Island west coast beaches in August-September. Reed (1981) examined 26 corpses and found that all but one would be considered adult, aged by the fused ends of the tibiae (unfused in young birds) but that only one male and no females had enlarged gonads. I examined six, of which five showed very uniform plumage with no moult, the other having a mixture of new (grey) and old (brownish) wing coverts, from which I concluded that only the last was more than 1 year old. Moult, other than of the quills, is a protracted process in this group of petrels and so, at the beginning of the breeding season, and notably in species with grey plumage (which browns with wear), birds over 1 year old rarely have that very uniform plumage typical of first-year birds.

The breeding biology of Kerguelen Petrels has been most studied on Possession and East Islands in the Crozet group (Mougin 1969, Despin *et al.* 1972). The breeding birds return for courtship and mating in late August-early September, often spending the daytime in burrows. Activity gradually diminishes towards the prelaying exodus in late September. Laying takes place about 10 October, within a period of days rather than weeks. Although the incubation period is of normal length (c.50 days) for a petrel of its size, chick-rearing takes only about 60 days, thereby resembling that of fulmars and prions more than of other petrels. Thus, chicks depart mainly at the end of January. The colonies are not then deserted, however, as adults (of uncertain status but presumed to be initially non-breeders and failed breeders) almost immediately reoccupy burrows in which no chicks have been reared. Visits to all burrows continue intermittently throughout winter, showing that adults are almost sedentary.

As most Kerguelen Petrels are found on New Zealand coasts when the sedentary breeders are occupying burrows over 8000 km to the west, obviously it is birds in their first few years of life that move eastwards during winter. This behaviour is, of course, not confined to Kerguelen Petrels: the winter to early spring occurrences of Salvin's Prions (*Pachyptila salvini*), Narrow-billed Prions (*P. belcheri*), Blue Petrels (*Halobaena caerulea*), Antarctic Fulmars (*Fulmarus glacialisoides*) and Antarctic Petrels (*Thalassoica antarctica*) are characterised by starving youthful birds with a majority in their first

year (Harper 1980, Veitch 1980). It seems that the fulmars and their close relatives, which feed predominantly or extensively on crustaceans during the breeding season, are capable of high breeding-success rates but that their populations are controlled by mortality, particularly affecting the young, in winter to early spring after food has become scarce. Species of petrel that feed at a higher level of the food chain, mainly on squid, which apparently have a relatively low calorific content (Croxall & Prince 1982), breed less successfully but find a more even supply of food throughout the year: their mortality is highest before fledging and within a few weeks after fledging, but thereafter it does not vary much with age.

It may be debated whether Kerguelen Petrels and the other species listed above, which drift eastwards to New Zealand in winter, do so voluntarily (i.e. by migration) or are blown this way. However, all these species are moving into an area (essentially the Tasman Sea) already well stocked with competitive species. Kerguelen Petrels encounter Grey-faced Petrels (*Pterodroma macroptera*), White-headed Petrels (*P. lessonii*), Cook's Petrels (*P. cookii*), and three species of *Procellaria* competing for squids and various species, but particularly prions and Cape Pigeons (*Daption capense*) competing for crustaceans. Thus, wind-drift of birds weakened by starvation seems the best explanation.

As Kerguelen Petrels hatch in late November or early December, they must be at least 8 months old when found in New Zealand in August-September. Fusion of the tibial ends probably occurs before then and so perhaps cannot be used to distinguish birds of the year at 8-9 months.

I examined part of the collection of Kerguelen Petrel skins in the National Museum of New Zealand. Of 11 skins, 3 aged "immature" on the labels and showing no moult would be first-year birds; 2 aged "sub-adult" on the labels but showing no moult would be first-year birds also; of 6 showing moult, 3 had been aged "adult", 1 "sub-adult", and 2 had not been aged. The skin collected earliest in the year, on 31 May 1959, was an adult just completing moult of its primaries, the outer two being markedly short. Thus, looking for presence or absence of moult in Kerguelen Petrels during the period (May-September) when they occur in New Zealand seems the most accurate way of distinguishing between birds of the year and older birds.

Kerguelen Petrels of breeding age probably rarely occur here. Breeding is likely to begin in birds older than four years, by analogy with my observations of age at first breeding in Grey-faced Petrels, and data of Guillotin & Jouventin 1980 on Snow Petrels (*Pagodroma nivea*), which are only slightly larger than Kerguelen Petrels. The sample of skins which I examined indicates that about half of previous specimens have been first-year birds, the others probably not much older. Judging by the small sample of six corpses I examined, in the big 1981 wreck more than 80% were in their first year.

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A 'YELLOW-CROWNED' PARAKEET ON CHATHAM ISLAND

At 1330 h on 29 December 1982 I saw a 'yellow-crowned' parakeet at Sore-tooth Spur (near the Taiko Camp) on the south bank of the Tuku a tamatea River, Chatham Island. The bird, which was alone, was seen briefly as it flew towards me, the red forehead and yellow crown being very conspicuous. The bird disappeared from sight and was not seen again. It was seen through 10 x 40 binoculars in bright light conditions. Parakeets were not uncommon around the Taiko Camp in December 1982 and early January 1983, up to eight birds being seen at one time, but all others seen closely were Red-crowned Parakeets (*Cyanoramphus novaezelandiae chathamensis*).

From this brief view the bird appeared to be a typical Chatham Island Yellow-crowned or Forbes' Parakeet (*C. auriceps forbesi*). At the time of observation I was unaware of the range of characters exhibited by hybrids between this taxon and the Red-crowned Parakeet. Taylor (1975) noted that hybrid *C. n. chathamensis* x *C. a. forbesi* on Mangere Island vary considerably, and of eight specimens of aviary-bred *C. n. novaezelandiae* x *C. a. auriceps* in the Canterbury Museum, Christchurch, only one is an 'obvious' hybrid, showing an orange back to the crown and red ear patches (pers. obs.). Some Mangere Island hybrids are "Forbes'-like," but differ from Forbes' by having "faint yellowish-orange spots behind the eyes" (Taylor 1975). This feature was not looked for on the bird which I saw and so I cannot determine whether it was Forbes' or a hybrid.

This is the first record of a Forbes'/Forbes'-like Parakeet from Chatham Island. There are historical records of Forbes' Parakeet from Pitt, Mangere and Little Mangere Islands but not from Chatham Island (Travers & Travers 1873, Fleming 1939). More recently, Taylor (1975) noted Forbes' Parakeets and hybrids being restricted to Little Mangere and Mangere Islands.

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