Stitchbirds 19 times on these transects; at least eight different birds were present. They were seen about twice as often in coastal forest as in kanuka (13 to 6). This pattern is similar to that on Little Barrier, where Stitchbirds are usually much more common in mature than in regenerating forest (Angehr, pers. obs.).

The transect data give only a very rough estimate of the density of Stitchbirds in different habitats because of small samples. With a transect width of 20 m, 2 ha are surveyed per kilometre walked. The 10 transects yielded estimates of 0.65 Stitchbirds/ha in coastal forest and 0.30 Stitchbirds/ha in kanuka forest. If Stitchbirds are evenly distributed at these densities throughout the island, more than 200 birds may be present. This assumption may be unrealistic. Although Stitchbirds have been found in all parts of the island, they may still be more numerous in the western half of the island, which is closest to their release point. However, even if the density estimates apply only to the western half of the island, a population of well over 100 stitchbirds is indicated. Based on my experience on Little Barrier, the rate at which party members encountered birds (calculated per hour or per kilometre) during non-transect surveys tends to support the higher figure. The fact that 85% of the birds seen well had been bred on the island also suggests that numbers may be high.

In summary, Stitchbirds appear to be breeding very well on Hen Island and are well distributed in both major forest types. The population is probably at least 100 and may well exceed 200 birds. Projections based on the population densities in similar habitats on Little Barrier suggest that Hen Island could eventually support more than 500 birds.

Stitchbirds have also been transferred to Cuvier Island (29 birds in June 1982) and to Kapiti Island (30 birds in August 1983). Although it is too early to know whether these introductions will succeed, the status of the Stitchbird on Hen Island gives strong grounds for optimism.

I gratefully acknowledge the help and hospitality of J. Cossey and B. H. Keene.

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FOURTH RECORD OF A BARN OWL IN NEW ZEALAND, WITH COMMENTS ON LONG-DISTANCE AIRCRAFT AS A POSSIBLE MEANS OF DISPERSAL

On 27 March 1983 at 3.30 p.m., a schoolgirl, Sharon Richardson, found an owl in the grounds of the Flat Bush School, near Papatoetoe, Auckland. The bird was weak and died within about 18 hours. It was brought to the Auckland Museum and identified as a Barn Owl

(Tyto alba): it is now preserved as a study skin (B1962.1) and bones (B1962.2) in the museum collection.

Measurements, taken from the fresh bird, are: total length (bill to tail) 300 mm, wing (flattened but unstraightened chord) 275 mm, tail 109 mm, tarsus 74 mm, bill (base of skull to tip) 33 mm. Wing and tail feathers are strongly barred and the distal half of the tarsus is very sparsely feathered.

The Australian race of Barn Owl *(T. a. delicatula)* is so similar to the southwest Pacific race *(T. a. lulu)* that they cannot be separated by colour (Amadon 1942). Race *delicatula* tends to have a longer wing and tail but the two races overlap in these measurements (Amadon 1942) and our specimen lies in the region of overlap. Therefore we cannot identify the Flat Bush owl to subspecies.

Upon dissection the owl proved to be a male. There were large fatty deposits beneath the abdominal wall, along the large intestine and about the stomach. The intestine contained a small amount of dark digested residue along its length, and the gizzard contained the fur and bones of a mouse *(Mus musculus)*. In the gizzard was also an ant's head, identified as *Notoncus ectatommoides* (Forel) a species widespread in parts of Queensland, New South Wales, Victoria and South Australia (Dr R. W. Taylor, pers. comm.). This establishes that the owl originated in one of these Australian states. The owl must have reached New Zealand relatively quickly because, even at death (18 hours after discovery), the gizzard and intestine had not had time to empty.

Scarlett (1967) reported *Tyto alba* as a subfossil in New Zealand, but Millener (1983) discounted this record. There are three recent records of Barn Owls (said to be the Australian race) in New Zealand, all from Westland. An adult female (Canterbury Museum AV 2346) was shot at Barrytown in August 1947 (Falla 1948). The second specimen (not preserved) was struck by a car near the Haast River mouth in October or November 1955 (Falla & Riney 1958). A male (Canterbury Museum AV 19,597) was found dead at Runanga in August 1960 (Grant 1960).

There seem to be three possible explanations of the arrival of the Flat Bush Barn Owl in New Zealand.

1. *The owl was smuggled in and escaped:* Proximity to an international airport strengthens this possibility, but the owl is not a species likely to be sought by aviculturists.

2. *The owl arrived unaided:* J. W. D. Hessell and N. Gordon (NZ Meteorological Service) report that between 24 and 27 March 1983 New Zealand experienced strong westerly winds associated with the passage of two cold fronts across the country. Pressures were such that a passive object travelling at low altitude on an isentropic surface would have taken 2½ days to pass from south-east Australia to Papatoetoe if it reached its destination at noon on 26 or 27 March. For

arrival at noon or midnight on 25 March transit time would have been longer (3½-4 days). Presumably a bird would reduce these transit times by its own power of flight and it seems likely that a Barn Owl could have reached Flat Bush at the time concerned in under 2 days. This explanation of the owl's arrival gains considerable support because, in the first half of 1983, there was a spate of sightings of vagrants in New Zealand (see *OSNZ News* 28 and 29). However, the owl's fat condition and the presence of some food in the gut seem to argue against even a rapid unaided passage.

3. *The owl was dispersed by a long-distance aeroplane:* Flat Bush School (and the Richardson's house in the same area) is almost directly in the line of approach of overseas jet aircraft landing at Auckland International Airport at times when the wind is westerly or southwesterly, and it is also at about the point where the undercarriage is lowered. It thus seems likely that a bird which had become trapped in the undercarriage bay would fall out at about this point. Mr K. J. Fisher, of the Airport engineering staff, confirms that adequate space would be available in the undercarriage bay. Further, he informs us that international jet aircraft may remain on the ground, often well away from the terminal buildings, for some time both by day and by night between flights at the different Australian airports, thus affording the opportunity for an owl to enter the undercarriage bay.

We have confirmed that there were flights from Brisbane, Sydney and Melbourne between 25 March and 3.30 p.m. on the 27th. Mr N. A. Rapson (Meteorological Office, Auckland Airport) reports that throughout this period overseas aircraft were using the eastern approach above Flat Bush, winds being fresh to strong W. to S.W.

We have no physiological evidence that an owl could survive the changes in altitude and temperatures involved in transport in an undercarriage bay. Such a mode of dispersal might, however, account for the presence on an airport approach path of a weak Barn Owl that had recently eaten and was in fat condition.

We are grateful to the Richardson family for reporting the owl and to Mr R. A. Richardson for suggesting the aeroplane hypothesis. We thank the various authorities who advised and commented.

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