

Only two of the five fledglings survived their second night in the open; they were seen frequently with both parents in attendance and on 26 November were finding food for themselves but still being fed, particularly by the male parent.

A third nest was built in a privet bush about 2 metres from Nest 1, but few details are available. Building must have started soon after the chicks had fledged from Nest 2, for on 15 November the nest was empty, with a chick about one week old dead on the ground about one metre from the hedge.

Nest 3 was used again. A clutch of 5 eggs was noted on 28 December 1976 but laying must have started shortly after the loss of clutch 3, as 5 chicks hatched on 4 January 1977. On 11 January when the chicks were a week old the hen again attacked me, hitting me on the head when I inspected the nest. Two chicks were found dead on the lawn on 12 January, one on the 15th and one later, when the nest was empty, with no sign of the fifth chick. Cause of death is unknown; all the dead chicks were in good condition, and no insecticides are used in the garden.

The parent birds remained in their territory until winter. A female blackbird was found dead in the garden on 7 June 1977 and about ten days later another female appeared.

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ACCIDENTAL DISPERSAL OF THE WELCOME SWALLOW THROUGH "HITCH-HIKING" ON SHIPS

Although stragglers had been recognised earlier at infrequent intervals (Oliver 1955, Fall *et al.* 1970), it is generally accepted that the first successful colonisation in New Zealand by the Australian Welcome Swallow (*Hirundo neoxena*) followed its 1958 invasion of Northland (Edgar 1966). Since then numbers have increased dramatically. It is now a common sight about North Auckland (see Munro 1969, 1973) and widely established in Waikato, Hawkes Bay, Manawatu, Wairarapa, Edgar 1966) and Bay of Plenty (P. F. Ballance, pers comm.) as well as throughout the South Island (Tunncliffe 1968). During field work about Northland over the past few years I have frequently encountered Welcome Swallows. I note they are quite common in the vicinity of North Cape and I have also seen a number of nests, much less than a metre above high tide level, in caves along the western shore of Hukatere Peninsula, Kaipara Harbour.

Although it is widely accepted that a southwards spread of the Welcome Swallow from Northland has given rise to the southern populations, it has also been suggested that these could be the result of further successful colonisations in the years following 1958 (Edgar 1966).

In March 1977 I was a member of the scientific party on a cruise of the N.Z. Oceanographic Institute's research vessel *RV Tangaroa*. On Sunday 27 March, the ship made an approach from the northeast to within a few kilometres of North Cape, continued southwards across Great Exhibition Bay, and then turned to sail some distance off-shore to the northeast before taking passage down the west coast to Nelson (dates, times, and the ship's track are shown in Fig. 1). Shortly after the approach to North Cape I noted that a solitary Welcome Swallow had joined the ship. This bird appeared to roost under an overhang on the upper deck near the galley whence it made forays with typical erratic swooping flight around the after parts of the ship. The Welcome Swallow stayed with the *Tangaroa* for several days and I last saw it at dusk on Wednesday 30 March shortly before we berthed at Nelson.

These observations suggest that eastwards dispersal across the Tasman Sea by strong winds during stormy autumns (Edgar 1966) may not be the only mechanism by which Welcome Swallows have reached New Zealand. It is quite possible that vagrants may also have hitched rides (or stowed away) on ships plying the Tasman Sea, as our bird did on the *Tangaroa*. This mechanism also could explain some of their sporadic appearances prior to 1958. After all, there are numerous precedents for accidental passive dispersal of marine organisms through the probable fouling of ships' bottoms. Local examples that are well documented include the arrival and spread of the Japanese oyster (*Crassostrea gigas*) in northern New Zealand waters (Dinamani 1971) and the recent discovery of a subspecies of the seaweed *Codium fragile* in Auckland Harbour (Dromgoole 1975). Similarly, *Elminius modestus*, the ubiquitous barnacle of the New Zealand foreshore successfully invaded British waters (Bishop 1947) and subsequently extended its range to the continent (Crisp 1958).

Although instances of birds in a fatigued or exhausted state alighting on ships, and as a consequence being shifted considerable distances are well known, I have seen no reports of the dispersal of healthy birds in this fashion. Nevertheless, the voyage across the Tasman is little longer than the passage between North Cape and Nelson, and one can readily envisage that birds such as swallows, and perhaps swifts and tree-martins amongst others, could spread from Australia to New Zealand in this way. Vagrant swifts and Australian tree-martins have been reported from time to time about New Zealand (see Oliver 1955; Falla *et al.* 1970). If they did, the initial colonisations would not necessarily be in the vicinity of the principal ports. These birds could quietly abandon ship where landfalls were first made — around North Cape, about the western approaches to Cook Strait, and around southernmost New Zealand. This would not be incompatible with the first sightings of Welcome Swallows noted by Edgar (1966) and Tunncliffe (1968), and also the records of swifts and tree-martins given by Oliver (1955) and Falla *et al.* (1970).

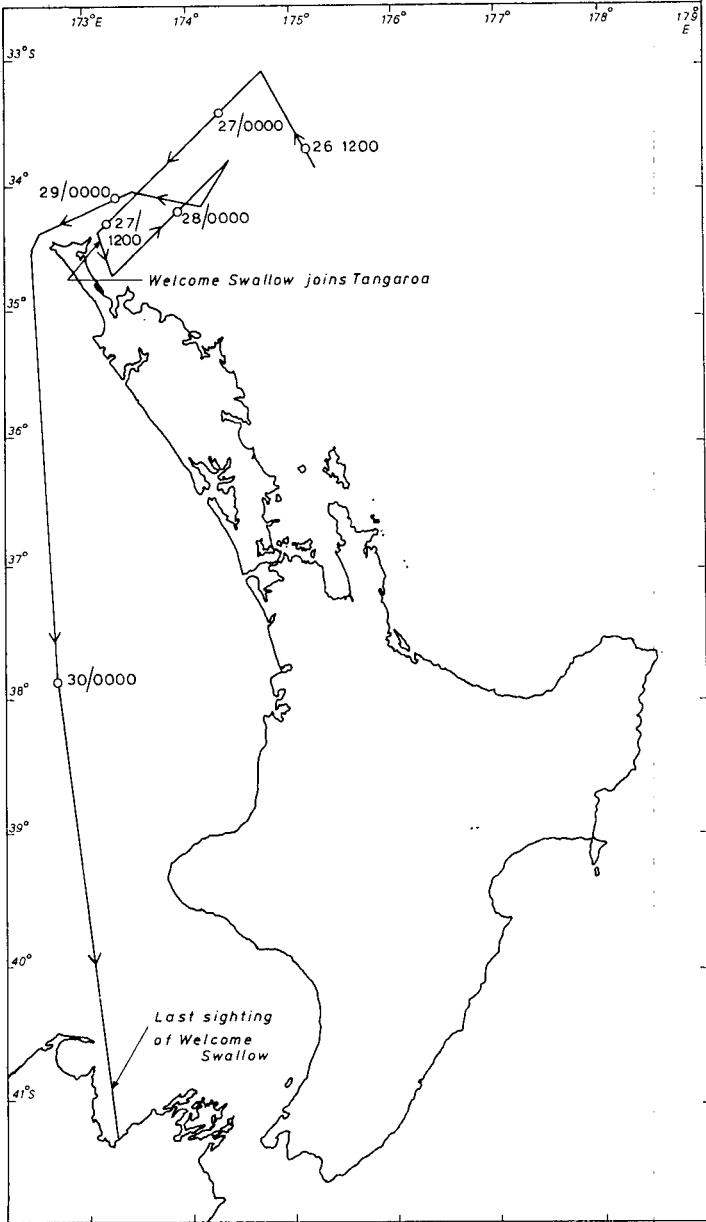


FIGURE 1 — Cruise track of the *RV Tangaroa* over the period 26-29 March, 1977.

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AN ANALYSIS OF NANKEEN KESTREL PELLETS

Two years ago, I wrote some short notes (*Notornis* 22: 341-342, 1975) concerning my observations of a Nankeen Kestrel (*Falco cenchroides*) at a limestone quarry near Paki Paki. This bird was roosting on the quarry face and was still doing so when I left to go overseas on July 19 1975. When I returned nearly four months later, it had gone and I have not seen it since. However, I was fortunate in finding at the bottom of the face, several pellets in good condition. Having seen kestrel pellets whilst in England, I am quite certain the pellets I collected were ejected by the roosting Nankeen Kestrel.

Pellet

Prey Identification

- No. 1 Bird, either Yellow Hammer or Greenfinch, distal part of tarsus; grass seed.
 No. 2 Mouse, upper left molars 1, 2 & 3, lower right incisor and molar 1; bird, feather fragments, species?; grass seed.
 No. 3 Mouse, 1 upper left molar 1, 1 lower left incisor and molar 1, 1 lower right incisor; bird, feather and bone fragment, probably Yellow Hammer, proximal end of humerus, and Redpoll, distal part of tarsus.
 No. 4 Mouse, 1 lower right incisor, 1 lower left incisor; bird, Redpoll; grass seed.