Notornis, 2008, Vol. 55: 170-171
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SHORT NOTE

Establishment and local extinction of fantails *(Rhipidura fuliginosa)* on the Snares Islands, New Zealand

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Pied phase South Is fantails *(Rhipidura fuliginosa fuliginosa)* colonised the 328 ha Snares Is (48°01′ S 166°36′ E) between 1977 and 1981 (Miskelly *et al.* 2001). During the mid to late 1980s, fantails were considered to be the 3rd commonest passerine on the group, with an estimated population of 300 pairs on North East and Broughton Is (Miskelly *et al.* 2001). This is the southernmost site from which fantails have been recorded (Heather & Robertson 1996; Higgins *et al.* 2006); note that the reported presence of fantails on Adams I, Auckland Is (Turbott 2002: 68) is incorrect, and the record should refer to Auckland Is tomtit *(Petroica macrocephala marrineri;* Graham Turbott *in lit*.).

Fantails disappeared from the Snares Is between March and July 2001 (PMS, *pers. obs*.). There were no discernible differences in the numbers of fantails seen in March 2001 than in previous annual visits extending back to 1992. However, from 27 Jul to 6 Aug 2001 none was seen, and only 1 bird has been seen subsequently. The authors visited the islands on 11 occasions between Aug 2001 and Apr 2008; the only fantail seen during this time was a single pied phase bird in July 2004 (PMS, *pers. obs*.). We consider this to have been a vagrant. Before 1981, single fantails had been recorded on the Snares Is in 1973 and 1975 (Miskelly *et al.* 2001).

Southern New Zealand experienced a severe, moist north-easterly storm during 17-22 Jul 2001 (NIWA 2001). The persistent storm-force winds from an unusual quarter apparently created extreme sea conditions on the eastern coast of the Snares Is, which resulted in the research hut on Station Point, North East I, being washed off its foundations. This hut had been erected in 1972, and it had not previously been considered to be at

Received 17 Jun 2006; accepted 3 Jul 2006

risk from storm waves. PMS's arrival at the Snares Is on 27 Jul 2001 was delayed by this storm, whose waves removed coastal vegetation and the peat base, so exposing the underlying granite, from low-lying areas of the east coast of North East I. Photographs taken of Station Point and the immediate vicinity since Dec 1947 (e.g., Falla 1948: fig. 9, Warham 1967: Plate XXV; Miskelly *et al.* 2001: fig. IB) show similar wave action had not modified this part of the coast in the intervening 54 years to 2001.

The main forested areas on North East and Broughton Is are sheltered from prevailing westerly winds, but are exposed to the north-east. The forest is composed of 2 tree daisy species, both growing to *c.*5-6 m, with most of the forest being a 155 ha monoculture of tupare *(Olearia lyallii). Brachyglottis stewartiae* is confined to a combined area of about 7 ha on Broughton I and near Hoho Bay on the east coast of North East I (Hay *et al.* 2004). Apart from some areas of shield fern *(Polystichum vestitum),* there is no subcanopy under Snares Is forests (Hay *et al.* 2004). We suggest that persistent storm-force winds during several consecutive days in Jul 2001 prevented any insects from flying, and caused the entire fantail population to succumb to starvation, hypothermia, or both.

Other island and mainland populations of fantails are similarly subject to severe decline or total collapse during prolonged severe weather. The Chatham Is fantail (*R. fuliginosa penita*) populations on Rangatira (South East) and Mangere Is have often been noted as being absent or reduced to low numbers (Nilsson *et al.* 1994; Heather & Robertson 1996; Aikman & Miskelly 2004), but recover rapidly, presumably by immigration from the adjacent Pitt I. The small forest patches on Rangatira and Mangere Is are dominated by the deciduous Chatham Is ribbonwood (*Plagianthus chathamicus*), and akeake (*Olearia traversiorum*), with little understorey. The forests on Pitt I are more extensive, more diverse botanically, and have greater structural diversity, with (in places) emergent nikau palms (*Rhopalostyltis sapida*), and a denser understorey of tree ferns (*Dicksonia* spp.; *Cyathea* spp.), kawakawa (*Macropiper excelsum*) and Chatham Is mahoe (*Melicytus chathamicus*). Aikman & Miskelly (2004) suggested that a dense, sheltered understorey, which would allow foraging during storm conditions, and dense leaf litter, which would support significant insect populations, were essential for the survival of Chatham Is fantails. Similarly, a reduction in fantail numbers on Stewart I and in Southland during 1988 was attributed to high rainfall in all weeks from Jul to Nov (Barlow 1989).

Fantails were not the only aerial insectivores to succumb en masse on the Snares Is. On 12 Nov 1985 we extracted 12 mummified corpses of welcome swallows (*Hirundo tahitica neoxena*) from a rock crevice beside Boat Harbour, North East I (Miskelly *et al.* 2001). Swallows are considered to be vagrants to the Snares Is. In addition to these dead birds, there are at least 6 further records of swallows, and on some occasions they have persisted for several weeks before disappearing or perishing (Miskelly *et al.* 2001).

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Keywords Snares Islands; New Zealand fantail; *Rhipidura fuliginosa*; colonisation; local extinction; weather effects; stochastic events