

SHORT NOTE

Recoveries of Hutton's shearwaters (*Puffinus huttoni*) from Kaikōura, New Zealand

LINDSAY K. ROWE*

T198 24 Charles Upham Drive, Rangiora 7400, New Zealand

GRAEME A. TAYLOR

Department of Conservation, PO Box 10420, Wellington 6143, New Zealand

The Hutton's shearwater (*Puffinus huttoni*), first described by Mathews (1912), is currently classified by BirdLife International (2018) as "Endangered" and as "Threatened – Nationally Vulnerable" under the New Zealand Threat Classification system (Robertson *et al.* 2017). It is a small black-and-white shearwater (length 36–38 cm; weight 365 g; Marchant & Higgins 1990) whose breeding grounds were unknown to the scientific community until 1965, when, following up on anecdotal reports from Māori, musterers, hunters, and Kaikōura locals of "muttonbirds" nesting in burrows high in the Seaward Kaikōura Ranges, Harrow (1965) found breeding colonies in the headwaters of the Kōwhai River (42.26°S, 173.60°E) at altitudes between 1,200 and 1,800 m a.s.l. The New Zealand Department of Conservation (DOC) identified the Hutton's shearwater as a threatened species requiring medium term action for its recovery (Molloy & Davis 1992).

From DOC banding archives, the first Hutton's shearwaters were banded in March 1961 in Blenheim and Wellington. These were probably juvenile birds that were disorientated and landed on shore ("fallout" birds) while undertaking their first migration to Australia. It was not until 1966 that

adult birds were first banded at the Kōwhai River colony. Since the late 1990s, a number of research projects have been conducted in the Kōwhai River colonies and the respective teams undertook a large amount of banding and recorded the band numbers of birds recovered (includes dead and recaptured birds unless specified otherwise) at colonies near Shearwater Hut. To date, over 6,500 birds have been banded including fallout birds near the Kaikōura township and over 2,300 recoveries have been recorded, mostly at the Kōwhai River colony.

The mean laying date for Hutton's shearwaters is 8 November and the incubation period is about 50 days (Cuthbert 2001). Therefore, the mean hatching date is about 28 December. Fledgling Hutton's shearwaters leave the breeding grounds from mid-March to early-April to undertake their first migration to Australian waters (Harrow 1976; Rowe 2018). Generally, young birds do not usually return to the breeding colonies until they are in at least their third year but they can return as near 2-year-olds, an uncommon occurrence but observed at Te Rae o Atiu (LKR *unpubl. data*), the colony established on the Kaikōura Peninsula by translocating chicks from the Kōwhai River (Miskelly *et al.* 2009; Rowe 2014). Thus, when determining the ages of birds banded as adult birds here, we have considered the average hatching date to be 1 January and have added 3 years to the time between banding of adult

Table 1. Minimum ages of Hutton's shearwaters recovered alive at the Kōwhai River, Seaward Kaikōura Range. The age for adults includes a conservative allowance of 3 years for time spent in Australian waters as young birds. * no banding record held by DOC - see text.

Band number	Banding date	Recovery date (s)	Age at last recovery (years)
Banded as adults			
X8716	06 December 1983*	13 December 2011, 21 November 2012	31.9
X8714	06 December 1983*	11 September 2001, 22 September 2003	22.7
X11026	10 January 1996*	16 November 2012, 11 November 2014	21.9
X8878	07 October 1983	13 September 2001	20.7
X9861	06 March 1996	13 December 2010, 13 December 2011, 15 December 2011, 13 December 2012	19.9
X9898	06 March 1996	13 December 2010, 13 December 2012	19.9
X10529	05 March 1996	13 December 2010, 11 December 2011, 13 December 2012	19.9
X11100	05 March 1996	08 December 2010, 13 December 2010, 26 November 2012, 13 December 2012	19.9
X5037	30 November 1994	13 December 2011	19.9
X4755	28 February 1994	13 January 2010	19.0
Banded as pulli			
X9896	06 March 1996	13 November 2011, 19 January 2015	19.0
X8360	10 March 1987	17 September 2001, 21 October 2004	17.8

birds and recovery. This will give conservative estimates of ages for birds when recovered, as adult birds could have been up to 20+ years old at the date of banding. It is likely that the oldest birds recovered will have been young birds when banded so the estimated age for these birds will be closest to the real age. Table 1 lists the birds with the longest recovery periods; only two of these birds were banded as pulli and were, therefore, of known age when recovered.

Recoveries from the Kōwhai River

X8716 This bird was sighted on 13 December 2011 and again on 21 November 2012 (Table 1). The DOC database does not have a record of the banding date, but the band was issued by the New Zealand Wildlife Service on 8 July 1983 (S. Taylor, DOC, *pers. comm.* 15 June 2018) to researchers who only banded Hutton's shearwaters at the Kōwhai River on 7 October 1983 (38 birds, data filed with DOC) and 6 December 1983. Therefore, using 6 December 1983 as the banding date we would get a realistic minimum age. The two recoveries in different seasons by different observers give credence to the sightings and the minimum age of 31.9 years for a bird still alive in 2012.

X8714 This was another bird probably banded the same day as X8716 and found 22.7 years later.

X11026 was recovered in 2012 and 2014 but there is no banding record in the DOC database. Bands X11001–X11100 were issued to DOC Nelson and X11092–X11100 were used on 5 March 1996. A field notebook reference to a trip 3 months earlier, 8–13 January 1996, has “caught *c.* 90 birds on surface – no retraps” (GAT *unpubl. data*). It seems logical for these to be the 91 unrecorded bands used on that trip so we used 10 January 1996 as the banding date for birds in the missing sequence. Thus, the last recovery date for X11026 implies a minimum age of 21.9 years.

The next longest living birds banded as adults were all a minimum of about 19–20 years old. The two oldest known-age birds, i.e. banded as chicks, were 19.0 and 17.8 years old (Table 1).

Manx shearwaters (*Puffinus puffinus*) can live over 50 years (BTO 2019; Welsh Wildlife Centre 2019), much longer than the maximum Hutton's shearwater recovery here, 32 years, which is longer than other small shearwaters in New Zealand. For example, a fluttering shearwater (*P. gavia*) banded as an adult was found dead 27.1 years later while the

Table 2. Recoveries of banded Hutton's shearwaters on New Zealand coasts at >100 km point distance from Kaikōura. All birds were found dead except X12407 which was found alive but died in captivity. See Fig. 1.

Band	Date banded	Age at banding	Banding locality	Date recovered	Locality	Point distance from Kaikōura (km)	Duration (years)
X12384	24 October 1997	Adult	Kōwhai River	28 November 2010	90 Mile Beach	807	13.1
X12791	07 March 1998	Pullus	Kōwhai River	05 February 2005	90 Mile Beach	804	6.9
X12407	24 October 1997	Adult	Kōwhai River	27 October 2002	W of Auckland	598	5.0
X14266	21 October 2004	Adult	Kōwhai River	02 December 2011	Raglan Harbour	484	7.1
X9867	06 March 1996	Adult	Kōwhai River	22 December 2010	Whareakeke Beach, Dunedin	470	14.8
X12355	24 October 1997	Adult	Kōwhai River	10 January 2003	10 km S of Oamaru	395	5.2
E3801	20 March 1961	Juvenile	Wellington	27 March 1961	35 km S of Gisborne	364	0.02
X10933	09 January 1997	Adult	Kōwhai River	10 October 2101	Timaru	302	4.8
X3382	01 November 1985	Adult	Kōwhai River	05 December 1987	Foxton Beach	214	2.1
X12530	31 October 1997	Adult	Kōwhai River	13 September 2008	Otaki Beach	209	10.9
X13145	12 November 1998	Adult	Kōwhai River	27 January 2008	Taumutu Beach	209	9.2
X12567	15 November 1997	Adult	Kōwhai River	14 January 1999	Pines Beach, Kaiapoi	146	11.2
X5676	18 January 1995	Adult	Kōwhai River	05 January 2004	North Brighton Beach	138	9.0

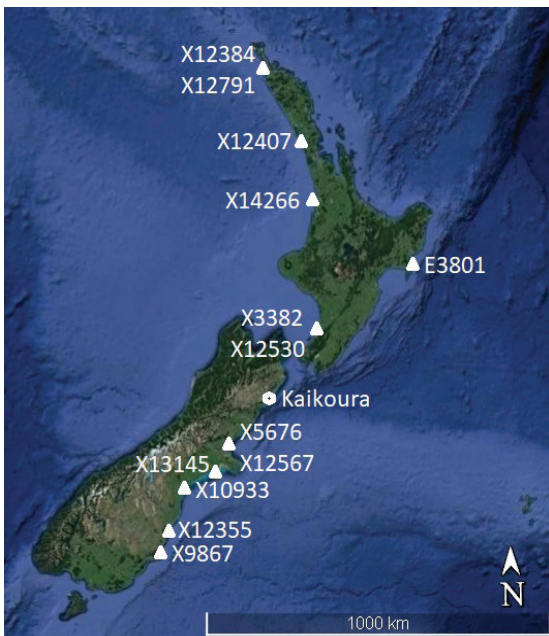


Figure 1. Locations where banded Hutton's shearwaters were recovered in New Zealand. See Table 2. (Picture: Google Earth 7 November 2019)

oldest New Zealand little shearwater was seen only 19.3 years after banding as an adult (M Bradshaw, DOC, *pers. comm.*).

Recoveries from New Zealand

Only 13 banded Hutton's shearwaters have been found on New Zealand beaches over 100 km from the banding site (Table 2; Fig. 1). Six birds were found south of Kaikōura between 10 October and 27 January. These would have been birds from the Kōwhai River colony on expeditions to the feeding grounds as recently shown by Bennet *et al.* (2019). Another six were found on the west of the North Island and these fit the pattern of beach patrol recoveries that has shown birds are mainly found there from September through February (e.g. Imber & Crockett 1970; Powlesland & Pickard 1992). E3801 was the sole bird found on the North Island east coast and was a juvenile banded in Wellington in March, a fallout bird, and suggests that some young birds migrating to Australia might travel up the east coast and pass around North Cape.

Recoveries from Australia

To date, seven banded Hutton's shearwaters have been recovered on Australian shores (Table 3; Fig.

Table 3. Recoveries of banded Hutton's shearwaters in Australia. All birds were found dead except X19085 which was found alive, rehabilitated and released. See Fig. 2.

Band	Date banded	Banding locality	Date recovered	Locality	Point distance from Kaikōura (km)	Duration (years)	Age at banding
X11645	13 September 2001	Kōwhai River	11 April 2003	50 km W of Albany	4,880	1.9	Adult
E76201	31 March 1969	Kaikōura, released at a Christchurch Beach	30 November 1970	230 km ENE of Albany	4,700	1.7	Juvenile – fallout
X12681	07 December 1997	Kōwhai River	15 February 2011	Kangaroo Island, South Australia	3,330	13.3	Adult
X15707	21 October 2004	Kōwhai River	08 April 2006	Toogoom, 270 km N of Brisbane	2,680	1.5	Adult
X2463	19 February 1972	Kōwhai River	09 April 1978	Bass Strait, 150 km SW of Melbourne	2,550	6.1	Adult
X1926	27 March 1976	Kaikōura	05 April 1976	220 km S of Brisbane	2,330	9 days	Juvenile – fallout
X19085	25 March 2014	Kaikōura	01 April 2014	Nambucca Heads, 350 km S of Brisbane	2,260	7 days	Juvenile – fallout

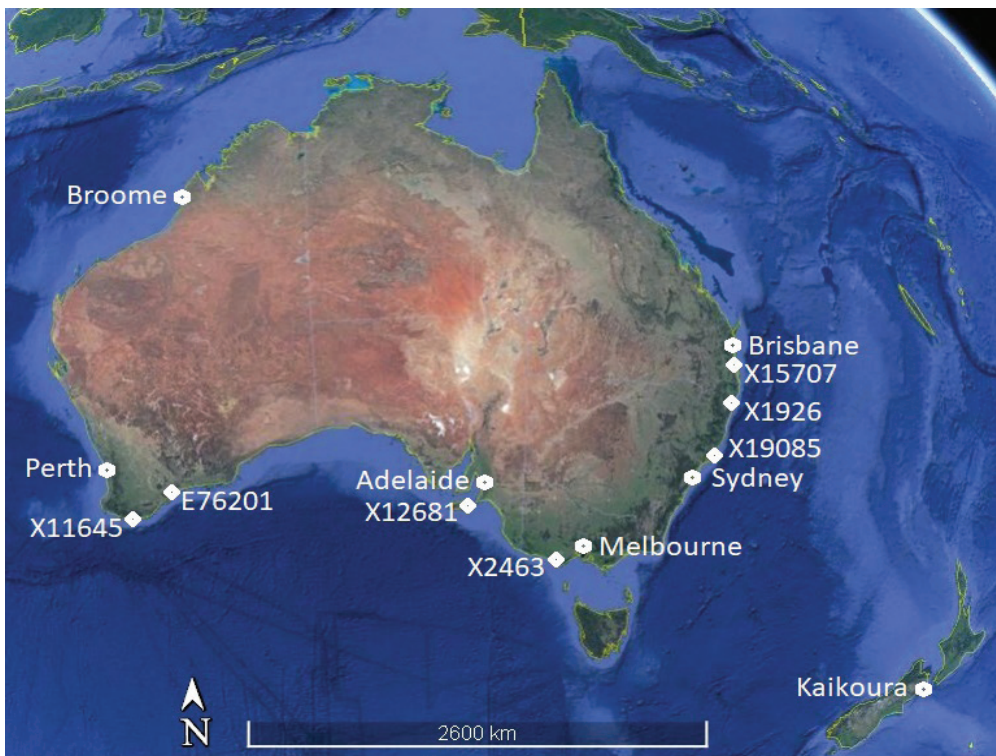


Figure 2. Locations where banded Hutton's shearwaters were recovered in Australia. See Table 3. (Picture: Google Earth 7 November 2019)

2). Apart from E76201, all recovery dates fit with birds leaving New Zealand in late summer/early autumn heading to winter feeding grounds in northern Australia. Three birds were found on the south coast possibly heading towards the feeding grounds in the Indian Ocean off NW Australia, and three more were found on the east coast heading to Torres Strait and then, perhaps, on to the Indian Ocean grounds. This indicates that birds, if they do circumnavigate Australia as hypothesised by Warham (1981), may travel along either route. That Hutton's shearwaters have been found off all coasts of Australia (Warham 1981; Marchant & Higgins 1990) supports this notion. The recovery of E76201 on 30 November 1970 banded as a juvenile on 31 March 1969 suggests it could be returning to New Zealand as a near 2-year-old. Alternatively, Halse (1981) suggested some non-breeders might spend part of the breeding season in southern Australian waters.

Two juveniles, both fallout shearwaters, X1926 and X19805, were found on the New South Wales/Queensland coast. On their maiden flights from the Kōwhai River colony, these birds made landfall in the Kaikōura township instead of reaching the sea. These birds were collected at night, held until banding the next morning and released at sea shortly thereafter. There, they had to become used to diving and feeding themselves, and then depart for Australian waters, where in the case of X19805, it was found alive on a beach at Nambucca Heads (30.65°S, 153.02°E, Fig. 2), all in less than seven days. Assuming it took five days (a day to get used to being a shearwater at sea, and it crashed ashore the day/night before recovery) to fly a minimum of 2,440 km if it went through Cook Strait rather than around North Cape (3,300 km), it travelled at a rate of about 500–600 km/day. X1926 was found dead 150 km north of Nambucca Heads nine days after banding.

This note has shown that, from banding and recovery records, Hutton's shearwater longevity is >30 years, migration to and from Australia is likely to be through Cook Strait and along the west coast of the North Island, and departing fledglings likely spend little time in New Zealand waters before heading to Australian waters.

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