

SHORT NOTE

Longevity records for Chatham Island pigeon (*Hemiphaga chathamensis*) and New Zealand pigeon (*H. novaeseelandiae*)

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The New Zealand avifauna evolved in the absence of predatory land mammals and is characterized by a high level of endemism and a large number of flightless species (Bell 1991). Compared with the temperate Northern Hemisphere, birds in the tropics and the temperate zone of the Southern Hemisphere, including New Zealand, are characterised by having smaller clutches, multiple nesting attempts, extended parental care, delayed maturation, and high adult survival (e.g. Ricklefs 2000; Russell 2000; Franklin & Wilson 2003).

Pigeons and doves (Columbidae) breed at a young age and generally have a long breeding season during which multiple clutches of 1–2 small eggs are laid. Some clutches are overlapped, incubation and fledging periods are short, nestling growth rates are high, and chicks often leave the nest well below adult weight (Robertson 1988). Smaller bird species tend to live shorter lives than larger ones, and short-lived species mature early, have short breeding cycles and have large clutches (Newton 1998). Pigeons and doves have most of the characteristics of short-lived species, except for their small clutches, and because many species are

legally hunted around the world for food or sport, their lifespan is often curtailed. The two native pigeons in New Zealand, the Chatham Island pigeon (parea; *Hemiphaga chathamensis*) and New Zealand pigeon (kereru; *Hemiphaga novaeseelandiae*), are both relatively large fruit pigeons (mean weights 800 g and 650 g, respectively; Heather & Robertson 2015) which are absolutely protected, and so they might be expected to be longer-lived than most pigeons and doves.

Grant *et al.* (1997) calculated an annual survival rate of parea of 96%, and a life expectancy of 24.5 years based on one apparent death in 22.4 bird years of resightings of 19 colour-marked parea. Clout *et al.* (1995) calculated that the mean life expectancy of 75 radio-tagged kereru at Pelorus Bridge, northern South Island, was 5.4 years, and suggested that at least some individuals should live for more than 10 years.

Here we report on new longevity records for the two native New Zealand species of pigeon from band recoveries reported through the New Zealand National Bird Banding Scheme.

Chatham Island pigeon/parea

The parea is a fruit pigeon endemic to the Chatham Islands. Its conservation status was classified as

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'Nationally Critical' (Miskelly *et al.* 2008), but they have increased in abundance in response to habitat protection and control of their predators, and so since 2012 they have been classified as 'Nationally Vulnerable' (Robertson *et al.* 2013, 2017).

In July 1990, we visited Chatham Island to conduct a survey of parea and to capture some individual birds for banding and radio-tagging (Clout & Robertson 1991). Our conclusion was that there were probably only *c.* 40 individuals remaining, all of them in the southern part of Chatham Island. We considered that the remaining birds were threatened by habitat degradation and predation. We therefore recommended fencing of key forest remnants to exclude sheep (*Ovis aries*), cattle (*Bos taurus*), and feral pigs (*Sus scrofa*), and intensive control of feral cats (*Felis catus*) and brushtail possums (*Trichosurus vulpecula*).

We mist-netted, banded, marked with a coloured plastic leg jess, and released three parea, two of them in the Awatotara Valley on 10 July 1990 and one in the Tuku-a-tamatea Valley on 14 July 1990.

Over the past 30 years, pest control and protection of key forest remnants have resulted in a strong recovery of parea on Chatham Island, to the extent that in 2009, the population was estimated to be *c.* 600 birds (Grant *et al.* 1997; Powlesland *et al.* 1997; Dilks *et al.* 2010). This recovery is undoubtedly partly due to ongoing trapping of feral cats which, despite efforts to exclude parea by using bird scaring models and hazing at traps, unfortunately results in a few accidental deaths of parea each year (Graeme Taylor, *pers. comm.*).

On 24 April 2018, a parea (K-8152) which we had banded in the Awatotara Valley (44°02'S, 176°38'W) was found to have been caught in a cat trap, still in the Awatotara Valley. The bird was badly injured and had to be euthanised. On examination, by Kailash Willis, it was found to be a female. It was caught 27 years 9 months and 14 days after it had been banded on 10 July 1990. It was already a large adult bird when we caught it in 1990, weighing 895 g. This individual was therefore probably at least 29 years old when it died.

New Zealand pigeon/kereru

The kereru is a fruit pigeon endemic to mainland New Zealand and its offshore Islands, and it was on Raoul Island, Kermadecs, until the mid-1800s (Heather & Robertson 2015). Its conservation status was once classified as 'Nationally Vulnerable' (Miskelly *et al.* 2008), but it has increased in abundance as a result of predator control, and so since 2012 it has been classified as 'Not Threatened' (Robertson *et al.* 2013, 2017).

During a study of the ecology of kereru at three sites on the mainland of New Zealand between 1983 and 1990 (Clout *et al.* 1995), we mist-netted

121 kereru. These birds were banded, marked with a coloured plastic leg jess and 102 of them had a radio-transmitter attached as a "backpack" with a specially designed harness incorporating a weak-link so the harness would break if snagged by vegetation, or would eventually break and shed the transmitter if the bird could not be recaptured (Karl & Clout 1987).

Of the 17 birds caught at Mohi Bush, eastern Hawke's Bay (39°51'S, 176°42'E), one (K-7518) was banded, leg-jessed and radio-tagged on 5 October 1988. It was found freshly dead on 28 March 2012, 23 years 5 months and 23 days after banding. This individual was therefore at least 24 years old when it died. The bird, minus its leg jess and radio-tag, died after apparently colliding with a deckchair on a lawn less than 100 m from its original capture site. A study skin of the male is preserved in the National Museum Te Papa Tongarewa collection (NMNZ OR.029558).

Comparison with other longevity records of pigeons

The five oldest longevity records for wild pigeons and doves (Family Columbidae) we could find in the literature were: a Cape turtle-dove (*Streptopelia capicola*) in South Africa that lived 34 years 7 months (SAFRING data in Birds4Africa 2020), two mourning doves (*Zenaidura macroura*) that were shot 30 years 4 months and 27 years 3 months after banding (USGS 2019), a white-winged dove (*Zenaidura asiatica*) shot 21 years, 9 months after banding (USGS 2019), and a bar-shouldered dove (*Geopelia humeralis*) released alive in Western Australia 20 years 2 months after first capture (ABBBS 2020). For comparison, the longevity records for pigeons and doves banded in Europe are a woodpigeon (*Columba palumbus*) and a collared dove (*Streptopelia decaocto*), both of which were recovered 17 years 8 months after banding (Euring 2017).

The two pigeon recoveries we are reporting on, that died 27 years and 9 months and 23 years and 6 months after banding, appear to be the third oldest and the fifth oldest free-living pigeons that we know of. What makes these New Zealand longevity records even more remarkable is that relatively small numbers of birds of these two species have been banded and recovered or reported resighted compared with many overseas species. A total of 103 parea have been banded and only three have ever been recovered or reported resighted, and 734 kereru have been banded (including birds in captivity) and 91 have been recovered or reported resighted (Michelle Bradshaw, NZ National Bird Banding Scheme, *pers. comm.*). For most of the other long-lived pigeons noted above, tens of thousands of birds have been banded and thousands have been recovered or resighted. This suggests that

both parea and kereru have relatively long potential life spans, and that both of these new records will eventually be broken.

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