Notornis, 2017, Vol. 64: 27-30
0029-4470 © The Ornithological Society of New Zealand Inc.

SHORT NOTE

Winter mortality of barn owl (*Tyto alba)* in Northland, New Zealand

NOEL HYDE
Wingspan Birds of Prey Trust, 1164 Paradise Valley Road, RD2, Rotorua, 3072, New Zealand

KEVIN MATTHEWS
31 Brott Road, RD2 Kaitaia, New Zealand

Barn owls (*Tyto alba*) have been reported as vagrants to New Zealand on 12 occasions since first sighted in Westland in 1947 (Falla 1948). In 2008, the first barn owls breeding in the wild were reported nesting in a large old puriri tree (*Vitex lucens*) (Nest A) on the outskirts of Kaitaia (Hyde et al. 2009). These barn owls have successfully bred at this site every year since, most recently in June 2016. In August 2016, a second breeding pair was located approximately 10 km away, also in an old puriri tree (Nest B) from which they successfully fledged young.

This short note reports on 5 barn owls that were found dead or injured (3 bodies recovered, Fig. 1) during the winter of 2016 in Kaitaia and Whangarei in Northland, and explores possible causes of the mortalities.

On 20 July 2016, an adult female barn owl was found dead on Brass Road Ahipara, Kaitaia. Based on previous observations of injured barn owls in the United States, we suggest that the lacerations to the bird's right wing and shoulder (Fig. 2) may have been the result of getting caught on a barbed wire fence before freeing itself. Another barn owl was found alive 9 days later, approximately 8 km from the female, on Wireless Road Kaitaia. This second bird quickly succumbed and unfortunately its body was discarded.

On 4 August 2016, 106 km away on a roadside in Wheki Valley Whangarei, an adult female was found alive but later died. An autopsy revealed urate stained feathers around the vent, rib bones of a partially digested mouse in the stomach, and internal bleeding in the body cavity and skull.

On 9 August 2016, an adult male owl was recovered from the roadside in Peria, 20 km east of Kaitaia. An x-ray revealed a dislocated radius and ulna, possibly the result of a car collision. This bird was subsequently transferred to the Wingspan National Bird of Prey Centre in Rotorua.

On 10 August 2016, a recently fledged male barn owl, still with traces of down on its rump, was found on the lawn of a Donald Road property, Kaitaia. This bird died shortly after, the specimen was autopsied

Received 25 October 2016; accepted 11 November 2016
Correspondence: *wingspan@xtra.co.nz*

Fig. 1. Winter mortality barn owls. Left to right: Wheki Valley Whangarei, Brass Road Kaitaia, Donald Road Kaitaia.

and found to weigh 237 grams; male barn owls usually weigh 244-418gms (Higgins 1999). The owl appeared emaciated, with no subcutaneous fat, a sharp, pronounced sternum and an empty stomach, indicating it most likely died from starvation.

Within Australia, young barn owls are often reported struck and killed by cars, flying into wires and killed by secondary poisoning after eating rodents poisoned by anticoagulant rodenticides, as well as from starvation, exhaustion and cold in winter (Higgins 1999). Barn owls are found in most tropical zones of the world and in temperate regions wherever the winter temperature does not fall too low (Bunn *et al.* 1982) They are apparently more susceptible to cold in winter than similar sized raptors including other owls (Marti & Wagner 1985), and possess a soft loose plumage that has comparatively poor insulation qualities, especially when wet (Webb & King 1984). In the early days of independence, the owlets are highly vulnerable in bad weather, and during heavy rain, gale-force winds or snow. It is not unusual to see one sat out in torrential rain, making no attempt to seek shelter or capture prey. In such conditions, they quickly become chilled and lethargic. For this reason, many of the dead birds recovered are emaciated owlets which have starved to death, having failed to capture enough prey to sustain themselves. Consequently, mortality is very high during periods of bad weather, especially in late-hatched first winter birds which have even lower fat reserves than the adults (Bunn *et al.* 1982).

Northland enjoys a mild climate with very few extremes of temperature (Chappell 2013). However, during July and August 2016 very strong, cold southerly winds crossed Northland, with gusts up to 79 km/h including thunderstorms, hail and flooding (pers. comm. Gregor Macara, NIWA; NZ Herald). At the same time, saturated ground conditions were observed in Kaitaia region. As small nocturnal rodents face a problem in temperature regulation in cold environments (Vickery & Bider 1981) causing them to seek shelter, it is during these extended periods of cold and winter rain they are less likely to be available to barn owl predation. Also, typical feral rodent populations in New Zealand peak

Fig. 2. Brass Road adult female showing damaged right wing.

in abundance (especially of young animals) in autumn, with increased mortality through winter (Miller & Miller 1995).

Barn owls mainly roost in dense foliage, hollows in trunks or limbs of living or dead trees. However, newly fledged birds sometimes choose poor, diurnal, very exposed roosting sites, when suitable tree hollows are available nearby (McLaughlin 1994), putting them at risk of predatory diurnal bird species such as magpies (*Gymnorhina tibicen*) and harriers (*Circus approximans*) (Higgins 1999). On two occasions immediately prior to the severe Northland weather, young fledged barn owls were observed roosting during the day in very exposed locations.

On 18 July 2016 at 0930 h on a fine but cold heavy dew morning, a juvenile barn owl was observed (120 m from Nest A tree) in a shallow gully with its head down and eyes closed on top of a low puriri branch. The bird was exposed and vulnerable to inclement weather, mobbing and predation from harriers which have been observed flying through the stands of trees in the area, above and below the tree canopy. The owl became immediately alert when it heard NH approach too closely, and after a few moments flew off towards the nest tree, narrowly escaping predation from a harrier, which swooped down at speed, and hovered above the canopy into which the owl had flown. On 20 July 2016 at 1000, a second juvenile owl was found roosting 60m from the same nest tree, on a low exposed branch of a small titoki tree (*Alectryon excelsus*) that offered very little protection from inclement weather.

The recent discovery of a second nest site in August 2016 and the recovery of 5 barn owls over 22 days, with the possibility of others being lost and not recovered, suggests the establishment of this species in Northland is growing but remains uncertain. Media coverage of these 5 barn owls has generated further interest with more recent reported sightings to Wingspan from north Waikato, Auckland and Whangarei. Some of these reports are of two birds seen together and require further investigation. However, it appears the identified causes of mortality of these Northland barn owls are similar to those experienced by barn owls elsewhere in its range.

ACKNOWLEDGEMENTS

Monitoring of the Northland barn owls is a project proudly supported by the Wingspan Birds of Prey Trust. Special thanks to Allan MacGillivray for photography and field assistance. Also Kurien Koshy Yohannan for his photo in Fig 1. A special thanks to Paul and Maryanne Richardson for their sponsorship support and shared love of these beautiful birds. A very special thanks to Robert and Robyn Webb of Whangarei Native Bird Rescue, for information on the recovery, and their intensive care of the Wheki Valley barn owl. A big thanks to Bob and Yvonne Jones for rescuing the Peria barn owl, and Debbie Stone for assisting in its recovery. Also Kaio Hooper and the Kaitaia Department of Conservation for information and assistance with the recovery of the young owlet fledgling from Donald Road. Thanks also to Murray Williams, Debbie Stewart and two reviewers for helpful comments that improved the draft.

LITERATURE CITED

Bunn, D.S.; Warburton, A.B.; Wilson, R.D.S. 1982. *The Barn Owl*. England, T & A Poyser Ltd Calton.

Chappell, P.R. 2013. *The Climate and Weather of Northland*. NIWA Science and Technology Series Number 59. NIWA, Wellington.

Falla, R.A. 1948. Classified summarized notes. *New Zealand Bird Notes 2:* 171.

Higgins, P.J. (Ed) 1999. *Handbook of Australian, New Zealand and Antarctic birds*: *Volume 4 parrots to dollarbird*. Melbourne, Oxford University Press.

Hyde, N.H.S.; Matthews, K.; Thompson, M.; Gale, R. 2009. First record of barn owls (*Tyto alba*) breeding in the wild in New Zealand. *Notornis 56:* 169–175.

Marti, C.D.; Wagner, P.W. 1985. Winter mortality in common barn owls and its effect on population density and reproduction. *Condor* 87: 111-115

McLaughlin, J. 1994. Aspects of the ecology and behavior of the barn owl, *Tyto alba* (Scopoli) in the Mallee wheat-belt of north-western Victoria, Australia. Unpubl. MSc thesis, La Trobe University, Melbourne, Australia.

Miller, C.J.; Miller, T.K. 1995. Population dynamics and diet of rodents on Rangitoto Island, New Zealand, including the effect of a 1080 Poison Operation. *New Zealand Journal of Ecology* 19: 19–27.

NZ Herald www.nzherald.co.nz/weather/news/archive. Downloaded on 3 November 2016.

Vickery, W.L.; Bider, J.R. 1981. The influence of weather on rodent activity. *Journal of Mammalogy 62*: 140–145.

Webb, D.R.; King, J.R. 1984. Effects of wetting on insulation of bird and mammal coats. *Journal of Thermal Biology 9:* 189-191.

Keywords barn owl; *Tyto alba*; Northland; mortality