

Causes of kiwi mortality in Northland

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Published by
Department of Conservation
Head Office, PO Box 10-420
Wellington, New Zealand

This report was commissioned by Northland Conservancy

ISSN 1171-9834

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Reference to material in this report should be cited thus:

Pierce, R.J. and Sporle, W., 1997.

Causes of kiwi mortality in Northland. *Conservation Advisory Science Notes No. 169*. Department of Conservation, Wellington.

Keywords: *Apteryx a. mantelli*, mammalian predators, dogs

Abstract

194 kiwi deaths reported in Northland between 1990 and June 1995 were caused primarily by dogs, indicating that the "Waitangi dog incident" of 1987 was not an isolated instance. Over the five and a half year period, dogs accounted for 135 (70%) of all reported kiwi deaths and 78% of all deaths for which the precise cause was established. The second greatest cause of death was vehicles (12; 6% of deaths). Although the data were biased against more cryptic predators, e.g. cats and mustelids, the figures nevertheless represent an alarming impact by dogs. Several categories of dog figured prominently, particularly stray/feral dogs and pet dogs, but farm dogs and hunters' dogs also killed many birds.

1. Introduction

Northland is the stronghold for North Island brown kiwi (*Apteryx australis mantelli*), but a survey carried out in 1992-93 indicated that their range had contracted markedly since the 1970s, particularly in southern Northland (Miller & Pierce in press). Kiwi in Northland appear to have come under increased pressure in recent years with northward expanding populations of possums (*Trichosurus vulpecula*) and ferrets (*Mustela furo*) as well as increased reports of dog attacks (Taborsky 1988, Marchant & Higgins 1990, Miller & Pierce in press).

Few quantified data are available on causes of kiwi deaths. Reid *et al.* (1982) reported on the causes of death of 50 kiwi in Taranaki and Northland, in which dogs accounted for 28% of deaths.

Possums, ferrets and other predators are known to prey on eggs, chicks and adults of various kiwi taxa (J. McLennan, H.A. Robertson pers. comm.) and their relative impacts on North Island brown kiwi are currently being researched in Northland and the Urewera region. Meanwhile, dog control is being advocated and implemented in various parts of Northland as part of the Kiwi Recovery Programme (Butler & McLennan 1990). During this advocacy programme a database of kiwi deaths on specific incidents since 1990 has been kept. This note reports on the details of the database to June 1995. Excluded from the database are the interim results of an intensive kiwi research programme in the Purua area near Whangarei (H.A. Robertson pers. comm.).

2. Methods

The data sheets were completed by Department of Conservation staff and covered details of observer, date, locality, cause of death and final destination

of specimen(s). Where the incident was not actually seen taking place, specimens were examined for signs of trauma, e.g. bite marks and broken bones. Most of these were examined by the authors, veterinary surgeons or by staff of the Whangarei Native Bird Recovery Centre. Vague reports from the public were excluded from this analysis.

3. Results

3.1 NUMBER OF REPORTS

From 1990 to June 1995, 125 incidents have been filed involving the deaths of a total of 194 kiwi. Of the 194 reported deaths, 58 carcasses or part thereof were presented to or collected by Department of Conservation staff for examination. Most of these specimens have subsequently been despatched to Massey University for additional research.

3.2 CAUSE OF DEATH

Details of cause of death are presented in Table 1. Of the 194 reported deaths, only 18 (9%) could not be confidently assigned to a specific cause.

Table 1. CAUSES OF KIWI DEATHS

	Dogs	Vehicle	Trap	Cat/ Mustelid	Poison	Accident	Human	Other	Unknown	Total
No. incidents	70	12	7	5	2	2	1	8	18	125
No. specimens presented	28	10	6	2	2	0	0	1	9	58
Total no. kiwi reported/supplied	135	12	7	5	2	2	2	8	21	194

3.2.1 Dogs

Dogs were the most frequently reported cause of kiwi deaths, accounting for 56% of incidents and 70% of deaths. If the 18 deaths from unknown causes (some of which were suspected to have been caused by dogs) are excluded from the sample, dogs accounted for 78% of reported deaths. Most of the reports were of single kiwi being killed, some of them incubating eggs. There were also several multiple fatalities including 20 birds between Opua Forest and Waitangi in 1990 and up to 7 birds at other sites in eastern Northland.

An analysis of type of dog and situation reveals that kiwi are vulnerable to dogs under a wide range of circumstances (Table 2). The greatest number of reports are of feral or wandering/stray dogs (38 deaths) and of pet dogs that are loose during the day or night (29 deaths). Fewer deaths, but still significant numbers, were reported involving farm dogs, pig/goat hunters' dogs, and a duck shooter's dog.

Table 2. CIRCUMSTANCES IN WHICH DOGS KILLED KIWI

	Unknown Feral/ Stray	Pet	Farm	Hunter	Duck	Total
No. incidents	26	10	21	7	5	70
No. specimens	17	0	5	3	3	28
Total no. kiwi reported/supplied	50	38	29	8	5	135

Feral/Wandering Dogs: Although there were only 10 reports of feral and/or wandering dogs killing kiwi, most involved multiple deaths, accounting for 38 kiwi fatalities. These included four instances of dogs killing 5-7 birds, all at coastal localities in eastern Northland - near Russell, Purerua Peninsula (2) and Taemaro Bay on Hihi Peninsula. It is likely that the 20 deaths reported in the Opuia Forest ("unknown" dog(s)) were also the result of a feral or wandering dog(s).

Pet Dogs: Pet dogs killed at least 29 birds. This included dogs being taken for daytime walks along forest tracks or roads, and especially pet dogs not being tied up at night both at home or when camping (15). Most were of single kiwi deaths, but one involved a house-based pet that was left loose at night and on some mornings had deposited a dead kiwi at the back door or in the backyard. Each of the kiwi had apparently been caught in a nearby bush reserve and although its owners thought they had trained it to leave kiwi alone, a survey of that particular reserve in 1992 revealed that kiwi were no longer present. Possum hunting at night with pet dogs (or pig dogs) accounted for at least three kiwi. The breeds of pet dogs recorded killing kiwi were fox terrier (4), rottweiler (4), labrador (1), labrador-poodle cross (1), poodle (1).

Farm Dogs: Sheep and cattle dogs were reported killing eight kiwi. These were primarily daytime deaths with dogs finding and killing kiwi living in dense vegetation and sometimes in burrows in rough pasture.

Hunters' Dogs: Pig hunters' (4 kills) and goat hunters' dogs (1 kill) were reported killing five kiwi. This included one incident of a lost pig dog.

Duck Shooter's Dog: A German shorthaired pointer killed at least five kiwi while accompanying its hunter master on duck shooting forays in the Purua area over a three year period.

3.2.2 Vehicles

Vehicles accounted for 12 kiwi deaths reported in 1990-95. These were mainly on isolated metal roads through forested areas including Waipoua Forest (3).

3.2.3 Trapped

Seven kiwi were killed or died later as a result of being caught in gin or victor traps set for possums. At least two of the traps had been placed in elevated positions (sloping ponga, fallen tree trunk) in order to minimise the chances of kiwi being caught. During this period about 10 kiwi were treated for trapping injuries by the Whangarei Native Bird Recovery Centre before being released back into the wild (R. Webb pers. comm.).

3.2.4 Mustelid/Cat Deaths

Five kiwi were recorded killed by a feral cat (1), ferret (1), stoat (*Mustela erminea*) (1) and cat or mustelid (2). The stoat killed and removed a kiwi chick from its burrow during the day. The other four incidents occurred at night and included a feral cat killing an adult kiwi after a long struggle. Two additional captive kiwi were recorded killed by a stoat (sick kiwi) and a ferret (healthy adult kiwi) (P Hulse, P .Anderson pers. comm.).

3.2.5 Poisoned

One bird (a chick) died of cyanide poisoning, while a juvenile which was suspected of having had a similar fate has yet to be autopsied.

3.2.6 Accidents

One bird was caught in tree roots and another in an artificial vent in an historic fortification.

3.2.7 Human Predation

At least one authenticated report was received of kiwi having been killed for food.

3.2.8 Other

Eight deaths from other causes included single birds dying from drowning in a swimming pool, caught under a cattlestop, killed by bulldozer, shredded by a rotary slasher, shot by a .22 rifle, beach-washed, sick and starving, and a bird which was killed by a harrier after the kiwi had been flushed during a stock muster.

4. Discussion

Because these data rely mainly on casual observations by the public and DoC field staff, they will be biased towards human-related causes of death, e.g. vehicle kills, trapping and accidents with artificial structures. They will also be biased towards some categories of dog kills, particularly pet dogs and farm and possum hunters' dogs, since most of these dogs are accompanied by their owners. However, many owners would not have reported kiwi deaths for fear of repercussions. Feral/stray dog kills are less likely to be detected because they can occur at isolated sites, well away from roads and tracks. For example, of the estimated 400-500 kiwi killed in Waitangi by a stray dog in 1987, only 23 carcasses were actually found (Taborsky 1988). Stray and feral dogs are frequently sighted in forests, forest remnants and shrublands, and their true impact is probably under-estimated by this dataset. Whatever the biases, the reporting of 135 dog-killed kiwi over a four year period is an alarming statistic for what is a slow-reproducing, potentially long-lived species. The figure probably under-estimates by severalfold the actual dog-kills that occurred in Northland during this period.

Another group of predators that is likely to have its predation go largely undetected by casual observation is that of mustelids and feral cats. These predators usually drag their prey to secluded sites so that any carcasses of kiwi are even less likely to be spotted than are those killed by feral/stray dogs. There have been a few other observations of feral cats chasing and fighting with adult and young kiwi in which the observer intervened to rescue the kiwi (P Anderson, S. McManus pers. comm.). However, current research near Whangarei suggests that juvenile kiwi are extremely vulnerable in areas supporting cat and mustelid populations, whereas adults are apparently less vulnerable to these predators (P Miller, H.A. Robertson pers. comm.). However, rogue ferrets or cats, like rogue dogs, may affect local populations.

The impacts of dogs and other predators undoubtedly extend beyond deaths of adults and young kiwi. A number of nest desertions have been reportedly caused by dogs as well as humans and machinery, while the possible impacts of possum disturbance and predators is currently being investigated near Whangarei. One instance of stoat predation of an egg was found on Motuarohia Island in the Bay of Islands, the egg displaying three sets of stoat canine teeth marks around the opening.

5. Acknowledgements

We thank the following people for their detailed contributions on causes of kiwi mortality: P Anderson, L. Charman, K. Hawkins, T. Jackson, M. McGlynn, P Miller, T. Herbert, D. Taylor, B. Waddell, A. Walker and R. Webb; and H.A. Robertson for comments on the manuscript.

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