

SHORT NOTE

Tuatara (*Sphenodon punctatus*) predation on landbirds (Aves: Passeriformes and Galliformes)

COLIN M. MISKELLY

Museum of New Zealand Te Papa Tongarewa, PO Box 467, Wellington 6140, New Zealand

The tuatara (*Sphenodon punctatus*) is the sole surviving member of the reptilian Order Rhynchocephalia, and is largely confined to rat-free islands off the north-east coast of New Zealand and in Cook Strait. Growing to a maximum of about 80 cm in total length and up to 1.3 kg in weight, tuatara are typically the top terrestrial predators on the seabird-dominated islands where they are present (Walls 1981; Daugherty & Cree 1990). Their predominant prey are large invertebrates, including beetles (Coleoptera), weta (Orthoptera) and spiders (Araneae), and also lizards (Squamata: Scincidae and Gekkonidae) (Walls 1981; Daugherty & Cree 1990). Tuatara are mainly sit-and-wait predators, with most prey caught at night (*ibid.*).

Tuatara often use burrows excavated by petrels (Family Procellariidae) as retreats, and occasionally kill and consume petrel eggs and nestlings in

the burrows (Wright 1961; Walls 1978, 1981). A characteristic sign of tuatara predation of seabird chicks is for the head to be severed, and the rest of the body left unconsumed (Fig. 1). Although difficult to observe in a burrow, it is likely that tuatara entering a petrel nest chamber encounter a relatively immobile chick, and respond to movements of the chick's head as if it were a prey item (Walls 1981).

While the majority of prey items consumed by tuatara are slow moving, there are a few records of tuatara catching and consuming faster moving prey. I here report 5 occasions where tuatara have been seen capturing, holding and/or consuming landbirds of 5 species.

1. Chaffinch (*Fringilla coelebs*)

Dawbin (1982: 163) reported an undated personal observation of a large adult male tuatara on the Aldermen Islands, Bay of Plenty, consuming a chaffinch. The tuatara was seen on the forest floor

Received 20 October 2014; accepted 31 October 2014

Correspondence: colin.miskelly@tepapa.govt.nz

around noon “holding in its mouth the head of a chaffinch so freshly caught that a caterpillar in its beak was still actively wriggling”.

2. North Island saddleback (*Philesturnus rufusater*)
Tuatara were translocated to Tiritiri Matangi Island, Hauraki Gulf, in October 2003. An adult tuatara was observed eating a saddleback, believed to be a juvenile, at night under forest in early January 2004 (Anonymous 2004).

3. House sparrow (*Passer domesticus*)
Moore & Godfrey (2006) reported an adult male tuatara (snout-to-vent length 250 mm) with a house sparrow in its mouth, seen at about 1000 h on 23 March 2005 near one of the houses on Stephens Island, Marlborough Sounds. The head of the sparrow had been partially consumed, but the bird was believed to be a ‘flight capable’ older juvenile or adult. The tuatara slowly consumed the bird over the following 2 hours. The authors speculated that the bird may have flown into a glass door and been stunned before capture.

4. California quail (*Callipepla californica*)
Tuatara were reintroduced to the predator-fenced Zealandia (Karori Wildlife Sanctuary) in Wellington in 2005 & 2007, where about half the animals were confined to a smaller (c. 2 ha) enclosure. On 9 February 2008 a family visiting the sanctuary reported seeing a family group of California quail walking along a log within the enclosure, when a large tuatara reared up on the side of the log and caught and ate the last chick in the line (Raewyn Empson, *pers. comm.*).

5. Bellbird (*Anthornis melanura*)
At about 0805 h on 11 February 2013 I observed the immediate aftermath of a tuatara predation event from a campsite at the north end of Aorangi Island, Poor Knights Islands. My tent was situated under a grove of karaka (*Corynocarpus laevigatus*) trees, and for much of our stay on the island (29 January – 11 February), numerous bellbird fledglings fed on fallen karaka fruit among the thick leaf litter. I was alerted by bellbird alarm calling in time to see a large male tuatara running through the leaf litter carrying a freshly deceased juvenile bellbird cross-wise in its mouth (Fig. 2). The tuatara carried the bellbird down its hole under a pile of boulders, and so neither the act of capture nor consumption was observed.

Together, these anecdotal observations reveal that tuatara are capable of catching free-flying and fast moving vertebrate prey. This predatory ability is facilitated by the cryptic immobility of tuatara when waiting for prey to approach, and the rapidity



Fig. 1. A Buller's shearwater (*Puffinus bulleri*) chick decapitated by a tuatara (*Sphenodon punctatus*), Aorangi, Poor Knights Islands, 8 February 2011 (photograph: Colin Miskelly).

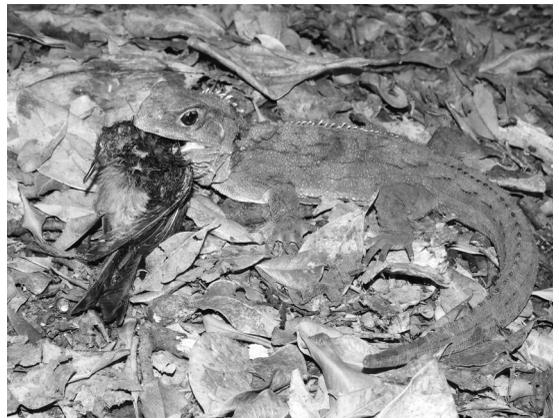


Fig. 2. An adult male tuatara (*Sphenodon punctatus*) holding a freshly killed juvenile bellbird (*Anthornis melanura*), Aorangi, Poor Knights Islands, 11 February 2011 (photograph: Colin Miskelly).

of their movement during the act of prey capture (*contra* Walls 1981).

ACKNOWLEDGEMENTS

Thanks to Graeme Taylor of the Department of Conservation for the opportunity to visit the Poor Knights Islands, Raewyn Empson for information on tuatara predation on California quail, and Alison Cree and Dorothy Miskelly for assistance with locating relevant references.

LITERATURE CITED

Anonymous 2004. Tuatara. *Dawn Chorus* [Supporters of Tiritiri Matangi newsletter] 56: 7.

- Daugherty, C.; Cree, A. 1990. Tuatara: a survivor from the dinosaur age. *New Zealand Geographic* 6 (April-June 1990): 66-85.
- Dawbin, W.H. 1982. The tuatara *Sphenodon punctatus* (Reptilia: Rhynchocephalia): a review. Pp. 149-181 In Newman D.G. ed. *New Zealand herpetology*. Proceedings of a symposium held at the Victoria University of Wellington 29-31 January 1980. New Zealand Wildlife Service occasional publication No. 2, Wellington.
- Moore, J.A.; Godfrey, S.S. 2006. Rhynchocephalia. *Sphenodon punctatus* (common tuatara) opportunistic predation. *Herpetological Review* 37: 81-82.
- Walls, G.Y. 1978. The influence of the tuatara on fairy prion breeding on Stephens Island, Cook Strait. *New Zealand Journal of Ecology* 1: 91-98.
- Walls, G.Y. 1981. Feeding ecology of the tuatara (*Sphenodon punctatus*) on Stephens Island, Cook Strait. *New Zealand Journal of Ecology* 4: 89-97.
- Wright, A. 1961. Fairy prion chick attacked by tuatara. *Notornis* 9: 133.

Keywords *Sphenodon punctatus*; tuatara; predation; landbird; passerine; songbird; quail; New Zealand