

SHORT NOTE

Abnormally long bill in a South Island saddleback (*Philesturnus carunculatus*)

WILLIAM CASH*

Department of Conservation, Marlborough Sounds Office, Picton, New Zealand

JAMES V. BRISKIE

School of Biological Sciences, University of Canterbury, Christchurch, New Zealand

Bill abnormalities have been observed across a wide variety of species (Craves 1994). Severe bill abnormalities are likely to reduce foraging efficiency, hinder preening, and compromise the survival of the individual (e.g., Clayton *et al.* 2005). A number of factors have been linked with the presence of bill abnormalities and include pesticides (Hoffman *et al.* 1988), malnutrition and vitamin deficiencies (Harper & Skinner 1998), and infection by pathogens (Gartrell *et al.* 2003). Bill abnormalities generally affect <1% of a population (e.g., Tweit *et al.* 1983), but recently, a marked increase in the frequency of bill abnormalities was noticed in a variety of species in North America, and although the exact causes have yet to be identified (Handel *et al.* 2010; van Hemert & Handel 2010), it is important to monitor bird populations elsewhere, especially in endangered species where a dramatic increase in the frequency of bill abnormalities might indicate problems that could threaten the survival of a population.

The South Island saddleback (*Philesturnus carunculatus*) is endemic to New Zealand and currently restricted to 15 offshore islands. The total population size was estimated to be about 1200 individuals (Hooson & Jamieson 2003). All

of these populations are descended from 36 birds that were rescued from Big South Cape I in the 1960s, when ship rat (*Rattus rattus*) populations irrupted (Atkinson & Bell 1973). In 1994, a total of 26 saddlebacks were translocated to Motuara I in the Marlborough Sounds in an effort to reintroduce the species to the northern part of its former range. The population has subsequently expanded to ca.130 individuals, although it suffered a population crash in 2002, apparently due to a disease outbreak (Hale & Briskie 2009). By 2009, the population had recovered sufficiently that saddlebacks were captured for transfer to nearby Blumine I to found another population. During this translocation, a saddleback with an abnormally long bill was captured and is reported here (Fig. 1).

On 18 Nov 2009, an adult saddleback was captured from a roost box in the evening. The bird had the characteristic chestnut saddle found in birds 2+ years of age (1 year old birds, or jackbirds, lack the saddle). The length of the culmen was 71mm, or more than double the average length found in this species (34 mm; Taylor & Jamieson 2007). The tip of its bill did not appear to close completely and was slightly crossed over at the distal end (Fig.1). Although the bird was not weighed, it was noticeably lighter and appeared smaller than the other adult saddlebacks handled on the visit. The

Received 26 Feb 2011; accepted 8 Aug 2011

*Correspondence: bcash@doc.govt.nz



Fig. 1. Views of a South Island saddleback with an abnormally long bill that was captured on Motuara I on 18 Nov 2009. Note that the tips of the bill do not close and the relatively small size of the wattle. Photos by Vicki Jackson.

wattles, which normally have an average length of 8.1 mm in adult females, and 9.6 mm in adult males in this population (Hale 2007) were also smaller (only ~5 mm). Due to its abnormality the bird was not banded and was released near its capture site on Motuara I. It was later seen foraging high in a manuka (*Leptospermum scoparium*) by searching the bark (presumably for insects). A total of 43 additional saddlebacks were captured on Motuara I and translocated to Blumine I, but none of these exhibited any bill abnormalities.

The cause of the abnormal bill in this saddleback is not clear, nor is it known if the abnormality was present through its entire life, although a jackbird with an extra long bill had been observed visiting a waterhole by others several months previously and may have been the same individual. The lighter weight of the bird suggested it was less adept at foraging than a normal-billed bird, but perhaps not enough to prevent it from surviving as long as 2 years. There was no evidence of the other ca.130 saddlebacks in the population on Motuara I showing similar problems, which suggests it is not due to a pathogen outbreak, although it would be worth monitoring the population to ensure this is the case. It also seems unlikely that the abnormality could be due to pesticide contamination or pollution as the

island is uninhabited and the surrounding area is mostly forest, or grazing land. Given the apparent rarity of the abnormality, it is likely that it was simply due to a genetic mutation or developmental problem.

ACKNOWLEDGMENTS

Funding and logistical support for the translocation of saddlebacks was provided by the Department of Conservation.

LITERATURE CITED

- Atkinson, I.A.E.; Bell, B.D. 1973. Offshore and outlying islands. Pp 372-392 In: *The natural history of New Zealand*. (eds., Williams, G.R.). Wellington: A.H. & A.W. Reed.
- Clayton, D.H.; Moyer, B.R.; Bush, S.E.; Jones, T.G.; Gardiner, D.W.; Rhodes, B.B.; Goller, F. 2005. Adaptive significance of avian beak morphology for ectoparasite control. *Proceedings of the Royal Society of London, Series B* 272: 811-817.
- Craves, J.A. 1994. Passerines with deformed bills. *North American Bird Bander* 19: 14-18.
- Gartrell, B.D.; Alley, M.R.; Kelly, T. 2003. Bacterial sinusitis as a cause of beak deformity in an Antipodes Island parakeet (*Cyanoramphus unicolor*). *New Zealand Veterinary Journal* 51: 196-198.
- Hale, K.A. 2007. Population bottlenecks and the risk of parasitic and microbiological infections in the endangered saddleback (*Philesturnus carunculatus*) and South Island robin (*Petroica a. australis*). Ph.D. thesis, University of Canterbury, Christchurch, New Zealand.
- Hale, K.A.; Briskie, J.V. 2009. Rapid recovery of an island population of the threatened South Island saddleback *Philesturnus c. carunculatus* after a pathogen outbreak. *Bird Conservation International* 19: 239-253.
- Handel, C.M.; Pajot, L.M.; Matsuoaka, S.M.; van Hemert, C.; Terenzi, J.; Talbot, S.L.; Mulcahy, D.M.; Meteyer, C.U.; Trust, K.A. 2010. Epizootic of beak deformities among wild birds in Alaska: an emerging disease in North America. *Auk* 127: 882-898.
- Harper, E.J.; Skinner, N.D. 1998. Clinical nutrition of small psittacines and passerines. *Seminars in Avian Exotic Pet Medicine* 7: 116-127.
- Hoffman, D.J.; Ohlendorf, H.M.; Aldrich, T.W. 1988. Selenium teratogenesis in natural populations of aquatic birds in central California. *Archives of Environmental Contaminants and Toxicology* 17: 519-525.
- Hooson, S.; Jamieson, I.G. 2003. The distribution and current status of New Zealand saddleback *Philesturnus carunculatus*. *Bird Conservation International* 13: 79-95.
- Taylor, S.S.; Jamieson, I.G. 2007. Determining sex of South Island saddlebacks (*Philesturnus carunculatus*) using discriminant function analysis. *Notornis* 54: 61-64.
- Tweit, R.C.; Burk, K.B.; Russell, S.M.; Truan II, J.B.; Walters, P.M. 1983. Incidence of crossed bills in Inca doves. *North American Bird Bander* 8: 12.
- van Hemert, C.; Handel, C.M. 2010. Beak deformities in northwestern crows: evidence of a multispecies epizootic. *Auk* 127: 746-751.

Keywords South Island saddleback, *Philesturnus carunculatus*; bill abnormality; Motuara Island