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A record of four regrowing tails in a Large Striped Skink *Ctenotus robustus* from Yan Yean, Victoria

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Abstract

A record of an adult Large Striped Skink *Ctenotus robustus*, from the northern outskirts of metropolitan Melbourne, with four regenerating tails is described. The rarity of this record is confirmed with reference to other field surveys and published studies. (*The Victorian Naturalist* 132 (1), 2015, 12–15)

Keywords: Large Striped Skink *Ctenotus robustus*, caudal autotomy, bifurcation, four tails

Introduction

Caudal autotomy describes the process whereby many reptiles lose or drop a part of their tail due to predator attack or spontaneous contraction of tail muscles (Bateman and Fleming 2009; Wilson 2012; Cogger 2014). Once a section of tail has been lost, the reptile has the ability to regrow a replacement tail (Cogger 2014). This process is particularly common in members of the family Scincidae (Wilson and Swan 2013). Occasionally bifurcation occurs, producing two tails giving a forked tail appearance; however, it is extremely uncommon to find skinks with three or four regrowing tails (Wilson 2012). During a study of vertebrate fauna in February 2014 at Yan Yean on the northern outskirts of Melbourne, an individual Large Striped Skink *Ctenotus robustus* with four regrowing tails was captured.

Site Description

The Growling Frog Golf Course (GFGC) is situated in Yan Yean (37° 33'S, 145° 04'E) on the Victorian Volcanic Plain, approximately 33 km north-north-east of the Melbourne CBD. Surveys of vertebrate fauna and assessments of conservation works have been conducted at the property since 2007 (Homan 2011, 2012). The land manager, the City of Whittlesea, has carried out a habitat enhancement program that includes the use of concrete pavers as artificial refuges for small vertebrate fauna. Numerous reptile species have been recorded at the site, including the Large Striped Skink, a common lizard on Melbourne's northern outskirts (Museum Victoria 2006). Between 2007 and 2014 Large Striped Skinks made up 43% of all lizards recorded at GFGC.

Observation of Large Striped Skink with four regrowing tails

During a survey of vertebrate fauna at GFGC in late February 2014 concrete pavers and other artificial habitat were lifted to record any vertebrate species that may be utilising them as refuges. When one paver (600 × 600 × 50 mm) was lifted an adult Large Striped Skink (Snout to vent length = 93 mm) with four regrowing tails was captured (Figs. 1–3). The original remaining tail section measured 70 mm; the four regrowing tails measured 50 mm, 33 mm, 30 mm and 10 mm. During all surveys at GFGC since 2007, 96 Large Striped Skinks have been captured. Numerous individuals had single regrowing tails; however, the specimen captured in February 2014 was the only individual with multiple tails.

Discussion

Several reptile studies have recorded caudal autotomy with occasional bifurcation occurring in regrowing tails. In Tasmania, Hickman (1960) made observations on the skink *Liopholis whitii* (formerly *Egernia whitii*). Three hundred and fifty individuals were examined, but only one individual had a forked tail. Seligmann *et al.* (2008) studied the New Zealand Tuatara *Sphenodon* spp. and found bifurcation in nine of the 143 specimens involved. In the United States of America, Fitch (2003) studied over 5000 individual lizards of five species. In one group of 710 individuals, 45% had experienced caudal autotomy. Bifurcation, however, was not reported by the author of this study.

Long-term and intensive studies at several sites in Victoria have recorded many skinks



Fig. 1. Large Striped Skink with four regrowing tails. Photo by Peter Homan.

that had experienced autotomy, but very few were found with multiple regrowing tails. At Quarry Hills Bushland Park, in South Morang, approximately 22 km north of the Melbourne CBD, 46 Large Striped Skinks were recorded between April 2006 and March 2014 (Homan 2012). Several had experienced caudal autotomy, but none were found with multiple regrowing tails. At two sites near Kinglake, approximately 50 km north-east of Melbourne CBD, 124 Coventry's Skinks *Niveoscincus coventryi* were captured between April 2011 and March 2014 (Northern Melbourne Institute of TAFE unpubl.). Numerous individuals were recorded with single regrowing tails, but bifurcation was recorded in only one individual, captured during active searching in March 2014 (Fig. 4). Near Mt Korong in central Victoria, approximately 200 km north-north-west of the Melbourne CBD, 47 skinks (six species) and 17 geckoes (two species) were recorded in March 2009 and March 2010 (Northern Melbourne Institute of TAFE unpubl.). Several individuals had regrowing tails; however, only one lizard, a Bougainville's Skink *Lerista bougainvillii* was found with a forked tail.

In the Eumeralla section of the Great Otway National Park, approximately 90 km south-west of the Melbourne CBD, 189 skinks (six species) were captured between March 2004 and March 2014 (Homan unpubl.; RMIT University unpubl.). In the Wonthaggi Heathlands Nature Conservation Reserve in South Gippsland, approximately 104 km south-east of the Melbourne CBD, 191 skinks (seven species) were captured between February 2001 and October 2013 (Homan 2003; RMIT University unpubl.; FNCV unpubl.). Caudal autotomy was recorded during studies at these two sites; however, no individuals were found with multiple tails.

Seligmann *et al.* (2008) and Wilson (2012) suggested that multiple tails may be the result of damage or lacerations to the original tail or several wounds to the remaining stump following tail loss. The latter is the most likely cause of the multiple tails on the Large Striped Skink found at GFGC. The first regenerated tail, branching to the left on the GFGC specimen, contains a small portion of the original tail with the pale dorsolateral stripe still present (Fig. 2) indicating, most likely, that the original break was ragged. It is also possible that a second



Fig. 2. Dorsal view of four regrowing tails. Photo by Peter Homan.



Fig. 3. Ventral view of four regrowing tails. Photo by Peter Homan.

wound occurred above the original break at a later time. Bifurcation had also occurred on one of the regrowing tails, thus producing the fourth tail. It is possible that this was caused by predator attack to the third tail.

Several authors have suggested that lizards with regrowing tails may be more vulnerable to predator attack due to reduced speed (Dial and Fitzpatrick 1984; Chapple and Swain 2002; Chapple *et al.* 2004). Wilson (2012) illustrated a Large Striped Skink with two tails and suggested that this individual may not have the same competitive edge as individuals with single tails. Despite this, the four-tailed Large Striped Skink found at GFGC, when released, disappeared under the concrete paver just as fast as the other individuals with single tails captured and released that day.

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Fig. 4. Coventry's Skink *Niveoscincus coventryi* with forked tail from Kinglake. Photo by Matt Clancy.