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Tail bifurcation in the African Rainbow lizard (*Agama picticauda* Peters 1877) from Ghana, West Africa

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The African Rainbow lizard (*Agama picticauda* Peters 1877) is one of the most common and widespread reptiles in sub-Saharan Africa, particularly in urban and suburban areas (Leaché et al., 2014; Wagner et al., 2009a). It is the only species in the *Agama agama* species group that has extensive African distribution from Mauritania to Ethiopia (Leaché et al., 2017). The species exhibits sexual dimorphism with females, immatures and subdominant males possessing a uniformly brown-grey body and limbs with olive green spotted heads (James and Porter, 1979; Leaché et al., 2014). Dominant males are larger than females and have highly conspicuous blue-black bodies and limbs with orange-yellow head. The tail is tri-coloured, with bluish-white at the base, an orange middle segment and a black tip (James and Porter, 1979). Male and female lizards reach lengths of about 250 mm and 200 mm respectively (Chapman and Chapman, 1964; Harris, 1964). *Agama picticauda* is highly territorial, with a family group comprising a dominant male, one to about five females, up to about seven immatures (juveniles and subadults), and sometimes subordinate males (Anibaldi et al., 1998). Encounters between males holding adjacent territories involve vigorous bursts of activity involving tail whipping.

Like in many lizards, intact tails are important for territory defence and play crucial roles in locomotion and intraspecific social interactions like courtship and mating (Bateman and Fleming, 2009; McElroy and Bergmann, 2013; Jagnandan et al., 2014). Tailless individuals or those with malformed tails consequently decline in social status and reproductive fitness as they become competitively inferior and sexually unattractive (Martin and Salvador, 1993; Maginnis, 2006). However, like most lizards, African Rainbow lizards undergo caudal autotomy (tail shedding) to escape predation and sometimes during intraspecific aggression or territorial conflicts (Tyler et al., 2016; Koleska et al., 2017a; LeBlanc et al., 2018). After a tail is shed, a process of regeneration is initiated to replace the autotomized tail (Casas et al., 2016). Tail bifurcation results from incomplete caudal autotomy when a new tail grows at the side rather than at the tip of the original tail (Bateman and Fleming, 2009; Pheasey et al., 2014). Tail bifurcation has been widely documented for many species of salamander (Henle et al., 2012; Hartzell, 2017), iguanid, scincid, lacertid, and agamid lizards and geckos (Ananjeva & Danov, 1991; Bateman and Fleming, 2009; Martins et al., 2013; Tamar et al., 2013; Koleska et al., 2017b; Vergilov and Natchev, 2017;

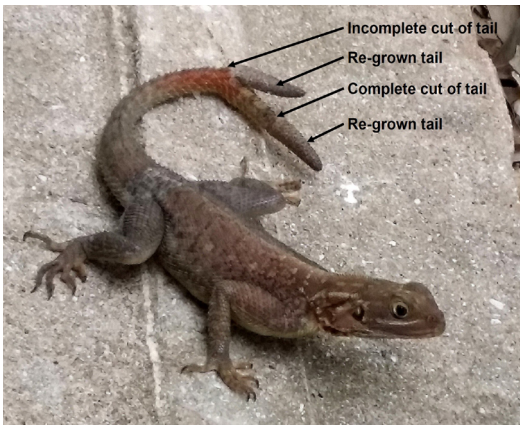

Figure 1. The African Rainbow lizard *Agama picticauda* with tail bifurcation.

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Wagner et al., 2009b; Koleska, 2018), but until now, it has not been documented in *Agama picticauda* from West Africa.

Here, we provide the first documented report of tail bifurcation of the *Agama picticauda* in Ghana. On 3rd July 2018 at 15:10 h GMT, in an open area with lawns, hedges and thorny bushes of ornamental plants in University of Ghana, Legon, Accra (05.650° N, 000.186° W; 98 m a.s.l) we found one adult subordinate male *Agama picticauda* with a bifurcated tail. The snout-vent length (SVL) and vent-tail length (TL) were 108 mm and 156 mm, respectively, and the bifurcation occurred at 106 mm from the base of its tail. The regenerated tail measured 30 mm and the bifurcated portion measured 50 mm. The bifurcated portion consisted of two sections: a 23 mm portion that was part of the original tail and a regenerated segment that measured 27 mm. This suggest a complete autotomy in the longer part of the tail, which has re-grown and a subsequent incomplete autotomy showing a complete regenerated tail part. Although the cause of the autotomy of this individual is unknown, it is likely due to predation as suggested in cases of autotomy and tail bifurcation in other lizards (Bateman and Fleming, 2009; Casas et al., 2016; Koleska et al., 2017a). The lizard was released at the point of capture after measurement.

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