SHORT COMMUNICATION

A four-tailed *Iguana delicatissima* (Squamata: Iguanidae) on Petite Terre, Guadeloupe (Lesser Antilles, Caribbean Region)

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Keywords: Lesser Antillean Iguana, lizard, malformation, regeneration, supernumerary tail.

Palavras-chave: iguana-das-antilhas-menores, lagartos, malformação, múltiplas caudas, regena-ração.

The Lesser Antillean Green Iguana, *Iguana delicatissima* Laurenti, 1768 occurs on 10 main islands of the northern Lesser Antilles (Knapp 2007). Because it is restricted to this relatively small area, the species survival is threatened by several factors such as habitat loss, traffic and hunting (Debrot and Boman 2014), as well as predation by domestic dogs and cats. Also, there is opportunistic hybridization with introduced *I. iguana* (Linnaeus, 1758) that results in fertile descendants (Vuillaume *et al.* 2015). The population of *I. delicatissima* on the Petite Terre Islands is important given the absence of *I. iguana* and therefore, the lack of hybridization (Breuil 2002).

Received 02 February 2018 Accepted 21 March 2018 Distributed June 2018

We received a picture of an Iguana delicatissima with an oddly shaped tail. The photograph (Figure 1) was taken on 12 December 2017 around 11:00 h during a field trip on Petite Terre, Guadeloupe (16.171° N, 61.109° W; 5 m a.s.l.) by François Soto and Fanny Hedin. Given the poor quality of the photograph, we may only assume that the individual was a subadult (considering the height of the dorsal crest, bright green coloration and size of the head) of indistinguishable sex. The tail was clearly malformed into four branches. Three of them were long (approximately the size of a regular tail) and the fourth one was short and with a blunt tip. According to the observers, the individual did not look malnourished and lacked other visible deformations. It stayed almost completely still on the branch during the whole observation (ca. 10 min) until the observers approached it, whereupon it escaped. The animal was not manipulated in any way.

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Figure 1. The observed individual of *Iguana delicatissima* on Petite Terre, Guadeloupe. (A) Overview, (B) closer view of the malformation with a contour of the four tail branches that are also marked by numbers (1–4) from the basal split (1) to the most distant tail branch (4).

Supernumerary tails occur in lizards rather frequently. Two-branched tail malformations are called bifurcations and these have been reported in many lizard families (e.g., Koleska *et al.* 2017 and literature cited therein). Records of tail malformations with three branches (trifurcations) are more scarce (e.g., Koleska and Jablonski 2015, Passos *et al.* 2016) and malformations with more than four tails are rare (e.g., Mata-Silva *et al.* 2010, Pelegrin and Leão 2016).

Supernumerary tail malformations are usually thought to result from previous injury or an incomplete tail autotomy (Lynn 1950). Although some think that Iguanidae lack tail autotomy (e.g., Bateman and Fleming 2009), others, based on studies of skeletal adaptations, have provided evidence that members of the family Iguanidae can lose their tails during early development stages but lose this ability with age (Etheridge 1967). Therefore, the I. delicatissima observed may have suffered a non-specified tail injury as a juvenile. Moreover, tail breaks in iguanids can occur for several possible reasons: (1) intraspecific aggression (Pérez-Buitrago *et al.* 2010) owing to crowding; (2) sexual aggression during mating (Iverson *et al.* 2004); or (3) failed predation attempts (Hayes *et al.* 2012) and incomplete tail autotomy (Pelegrin and Leão 2016). According to the observers, there were many *I. delicatissima* seen across the island. Although we may only guess the precise origin of this malformation, we suspect that intraspecific aggression may have contributed to this malformation. This is the first record of a supernumerary tail malformation for the genus *Iguana*.

Acknowledgments.—We thank François Soto and Fanny Hedin for sharing this remarkable observation with us. We also thank Linda Trueb and three anonymous reviewers for their comments that improved the quality of our manuscript. This work was supported by the Internal Grant Agency of the Czech University of Life Sciences Prague (CIGA) through Project N° 20172002.

References

- Bateman, P. W. and P. A. Fleming. 2009. To cut a long tail short: a review of lizard caudal autotomy studies carried out over the last 20 years. *Journal of Zoology* 277: 1–14.
- Breuil, M. 2002. Histoire Naturelle des Amphibiens et Reptiles Terrestres de l'Archipel Guadeloupéen: Guadeloupe, Saint-Martin, Saint-Bathélemy. Paris. Publications Scientifiques du Muséum National d'Histoire Naturelle, France. 348 pp.
- Debrot, A. O. and E. B. Boman. 2014. *Iguana delicatissima* (Lesser Antillean Iguana). Mortality. *Herpetological Review* 45: 129.
- Etheridge, R. 1967. Lizard caudal vertebrae. *Copeia* 1967: 699–721.
- Hayes, W. K., J. B. Iverson, C. R. Knapp, and R. L. Carter. 2012. Do invasive rodents impact endangered insular iguana populations? *Biodiversity and Conservation* 21: 1893–1899.
- Iverson, J. B., G. R. Smith, and L. Pieper. 2004. Factors affecting long-term growth of Allen Cays Rock Iguana in the Bahamas. Pp. 176–192 *in* A. C. Alberts, R. L. Carter, W. K. Hayes, and E. P. Martins (eds.), *Iguanas: Biology and Conservation*. Berkeley. University of California Press.
- Koleska, D. and D. Jablonski. 2015. Tail trifurcation recorded in *Algyroides nigropunctatus* (Duméril and Bibron, 1839). *Ecologica Montenegrina 3:* 26–28.
- Koleska, D., V. Svobodová, T. Husák, M. Kulma, and D. Jablonski. 2017. Tail bifurcation recorded in *Sauromalus* ater. Herpetology Notes 10: 363–364.

- Knapp, C. 2007. Ecology and conservation of the Lesser Antillean Iguana (Iguana delicatissima). Iguana 14: 223–225.
- Lynn, W. G. 1950. A case of duplication of the tail in Plethodon. Herpetologica 6: 81–84.
- Mata-Silva, V., A. Rocha, A. Gandara and J. D. Johnson. 2010. Cophosaurus texanus (Greater Earless Lizard). Multiple tails. Herpetological Review 41: 352–353.
- Passos, D. C., P. H. M. Fonseca, P. R. R. Vivar, C. Y. Kanayama, V. P. A. Teixeira, and A. G. Martinelli. 2016. Tail trifurcation in the lizard *Salvator merianae* (Squamata: Teiidae) investigated by computer tomography. *Phyllomedusa* 15: 79–83.
- Pelegrin, N. and S. M. Leão. 2016. Injured Salvator merianae (Teiidae) regenerates six tails in central Argentina. *Cuadernos de Herpetología 30:* 21–23.
- Pérez-Buitrago, N., A. M. Sabat, and W. O. McMillan 2010. Spatial Ecology of the Endangered Mona Island Iguana *Cyclura cornuta stejnegeri*: does territorial behavior regulate density? *Herpetological Monographs* 24: 86– 110.
- Vuillaume, B., V. Valette, O. Lepais, F. Grandjean, and M. Breuil 2015. Genetic evidence of hybridization between the endangered native species *Iguana delicatissima* and the invasive *Iguana iguana* (Reptilia, Iguanidae) in the Lesser Antilles: management implications. *PloS ONE* 10: e0127575.

Editor: Jaime Bertoluci