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Misconceptions about the ability of researchers to relocate the holotype of the Galapagos pink land iguana through the use of a passive integrated transponder

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Isla Isabela is the largest island in the Galapagos archipelago and hosts three endemic iguanid lizard species (Tzika *et al.* 2008, Gentile & Snell 2009): *Amblyrhynchus cristatus* (Bell, 1825), *Conolophus subcristatus* (Gray, 1831) and *Conolophus marthae* Gentile & Snell, 2009. The first iguanid listed exists as a marine species and the latter two are restricted to the terrestrial environment. It should be noted, however, that all three species can hybridize and produce viable offspring (Tzika *et al.* 2008). The International Union for Conservation of Nature (IUCN) lists the marine iguana *A. cristatus* as a "threatened" species and the land iguana species *C. subcristatus* as "vulnerable". Currently there are no studies that assess the status of the iguana *C. marthae*, so its status is given as "not evaluated" by the IUCN.

Prior to its description as *C. marthae*, the population of land iguanas living in the region of Volcan Wolf on Isla Isabela was considered as consisting of morphological variants of the more widespread land iguana *C. subcristatus* (Snell *et al.* 1984). Gentile & Snell (2009) adequately described and beautifully illustrated the distinctiveness of pink Volcan Wolf land iguanas and, at the same time, brought into question whether the restricted range of this species indicates that it is rare or endangered. Given the unknown status of this newly-described species, and to err on the side of caution with respect to potential conservation issues, no holotype specimen of *C. marthae* was preserved and accessioned into a museum collection. Instead, a specimen was captured and photographed, tagged with a Passive Integrated Transponder (PIT) and branded. It was designated as "holotype" in the original description with the intention of relocating this individual in the future if the population was later deemed sufficient in size to allow for the preservation of a specimen. Considering that they were following the mandates of the *International Code of Zoological Nomenclature* (Anonymous, 1999, the *Code* below; Article 73.1.4), the authors designated the Governmental Galapagos Collection (maintained by the Charles Darwin Foundation) as the repository of the holotype upon its preservation. The debates as to whether the *Code* should allow for the designation of living holotypes (free-ranging holotypes in the case of *C. marthae*) and whether the current text indeed allows this (Dubois & Nemésio 2007, Gentile and Snell 2009, Donegan 2009, Nemésio 2009, Dubois 2009) are not closed and will be settled only when the International Commission on Zoological Nomenclature votes on this and clarifies the text of the *Code* in this respect (Dubois & Nemésio 2007). In general, it is understood that a living holotype is to be preserved and accessioned into a scientific collection upon its death, and to satisfy such a condition in the future Gentile & Snell (2009) promised to do so with the free-ranging holotype of *C. marthae* – presumably because they were fairly certain that they will be able to relocate this specimen in the wild at a later date. This planned reclamation of the holotype was described by Donegan (2009) in the following terms: "In Gentile & Snell (2009), the individual in question was branded with a number and had a Passive Integrated Transponder (PIT) with a unique serial number hypodermically inserted allowing the individual's location", and by Nemésio (2009) in the following terms: "Gentile and Snell (2009) not only demonstrated their intention of depositing the onomatophore in a collection (explicitly named), but also were consistent with their intention by marking the specimen with a transponder which, supposedly, will allow its location and recovery".

The authors of both studies have misconceptions about the function and abilities of PITs. This type of tag or transponder consists of a microchip, an antenna, a chip capacitor and housing – typically made of biocompatible glass (Boarman *et al.* 1998). They are used to census animals (i.e., Boarman *et al.* 1998, Charney *et al.* 2009), and to track the movements of seeds and particulate minerals (i.e., Wilson *et al.* 2010). These tags range in size from 11.5 to 23 mm long by 2 mm wide. In the case of large vertebrates (like *C. marthae*), PITs are injected subcutaneously and can be detected by using a scanner that emits an electromagnetic field (EMF) tuned to a specific frequency. When the EMF hits the PIT, the tag emits its unique identity code allowing for the identification of an individual animal.

Generally biologists use a hand held scanner to read a PIT – usually placing the scanner in contact with the tag location or just a few centimetres above the tag location. Some studies have developed 'scanning stations' whereby an individual animal is scanned and identified when it travels past a stationary scanner. This data is remotely logged and

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