



Nota breve | Short note

## First documented record of fibropapillomas on green turtles *Chelonia mydas* in the Cabo Verde Archipelago, West Africa

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Fibropapillomatosis (FP) is a neoplastic disease characterized by epizootic tumours of the skin, flippers, periocular tissues, carapace, and plastron on marine turtles (Quackenbush *et al.* 2001, Aguirre & Lutz 2004). It also can produce nodules in all internal organs (Aguirre & Lutz 2004) and, depending on the size and location of the tumours, it can interfere with organ function (Quackenbush *et al.* 2001). The larger tumours can severely hamper mechanical ability of turtles and, consequently, their fitness (Aguirre & Lutz 2004). The FP is found more frequently in neritic juveniles and subadults, rare in adults, and pelagic juveniles (Jones *et al.* 2016). The etiology and prevalence of FP are not fully understood, nevertheless, it has been associated with different viruses (Greenblatt *et al.* 2005) and related to coastal heavily polluted areas of high

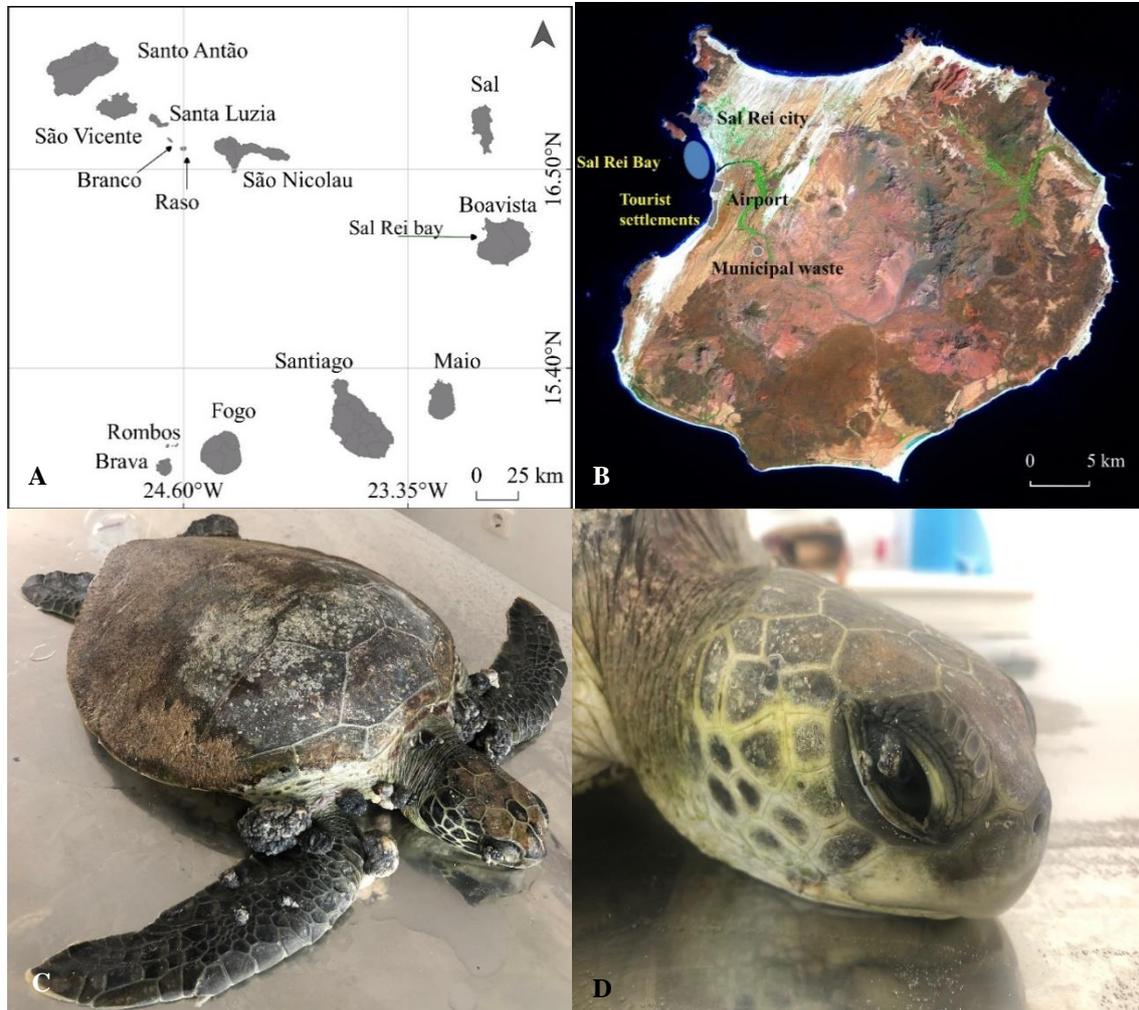
human activities, agricultural runoff, and/or biotoxin-producing algae (Aguirre & Lutz 2004, Van Houtan *et al.* 2010, Jones *et al.* 2016).

The FP have been found in tropical coastal oceans worldwide (Quackenbush *et al.* 2001, Aguirre & Lutz, 2004, Patrício *et al.* 2012), however in the East Atlantic records are rarer. The first report in this region was by Formia *et al.* (2007) in the Gulf of Guinea. Posteriorly, Loureiro *et al.* (2009) reported two cases in juvenile green turtle in São Tomé e Príncipe. In this communication, we report cases of sea turtle fibropapillomatosis in the Cabo Verde Archipelago.

In February of 2019, in less than two weeks, two juveniles of green turtle were found alive by a kiteboarder without mobility and floating in the water surface in Sal Rei bay (Fig. 1A and

B). The animals presented tumors distributed around the tail, ventral surface, the anterior and posterior flippers, the eyes, neck and mouth (Fig. 1C and D), and leeches near the tumors.

All the individuals were very weak and died days later. Biopsy samples and leeches were collected for future histological evaluation.



**Fig. 1.** Study area and study animals (photos by S. Martins). **A)** Map of the Cabo Verde Archipelago and location of the study area. **B)** Aerial photo of Boavista with the main city, Sal Rei, tourist settlements, the airport and municipal waste marked in grey, the agriculture area in green, and the area where the study animals were found in blue. **C)** General dorsal view of the 1st neritic juvenile green turtles afflicted by fibropapillomatosis. **D)** Snout view of the 2nd juvenile with a fibropapilloma in the eye.

The possible causes of recent records of FP in juvenile green turtles on Boavista Island are unknown, however these occurrences are consistent with previous reports that relate the prevalence of this disease with areas of high anthropogenic activity (Aguirre & Lutz 2004, Van Houtan *et al.* 2010, Jones *et al.* 2016). In fact, the bay of Sal Rei is one of the most touristic areas in Cabo Verde, and a runoff of the main city sewages. Furthermore, it is located in the mouth of Rabil lagoon

(a RAMSAR site), with agricultural runoff and municipal waste running into the sea. If these factors are causing the disease outbreaks is unknown. However, this hypothesis needs to be tested.

Therefore, a continuous surveillance of FP in this area and water analysis in the Sal Rei bay for potential infection are important and may provide important information concerning the impact of this disease on this fragile ecosystem.

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