

## **Rewilding insular habitats: is it time to plan the reintroduction of *Timon lepidus* to Berlenga Island?**

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### **Resumen:**

Island ecosystems are highly vulnerable to human-mediated biological invasions. While this impact is predominantly studied on endemic species, which are a primary focus of conservation efforts, impact on more widespread species is often neglected, despite their significant contribution to these ecosystems. Berlenga island belongs to a protected area located off the western coast of Portugal, being an important nesting site for several seabird species. The ocellated lizard *Timon lepidus* became isolated 9000 to 10000 years ago due to marine transgression, constituting a locally differentiated population, with unique morphological and behavioural adaptations to insularity. Lizards of this island restricted population exhibited weakened antipredatory behaviour, being slower runners and less aggressive. Furthermore, *T. lepidus* in Berlenga were often found in agglomerations and did not seem to exhibit accentuated territorial behaviour. Since the late 1980s, the Berlenga population of *T. lepidus* declined substantially, seemingly due to predation and competition with the increasing population of seagulls. Furthermore, the increased adult mortality rate, the food scarcity leading to cannibalism of juveniles, the intense destruction of postures by rat predation and by rabbit tunnels construction, along with attacks led by dog packs are likely to have caused an accentuated population decline, going from 180 individuals in 1987, to 25 individuals in 1996. All attempts to reestablish the population viability failed and the last individual was observed in 2009. Annually, between 2016 and 2019 we conducted extensive herpetological surveys in Berlenga. Multiple observers exhaustively searched for *T. lepidus* during multiple days each year and no individuals were detected. Furthermore, interviews to the key researchers and wildlife rangers working in the island revealed that for over 10 years no individual has been found, despite extensive fieldwork in Berlenga, associated with a 3 year long LIFE+ project devoted to the restorations of the island's habitats. We thus believe that the Berlenga population of *T. lepidus* can confidently be declared extinct. Considering the success of interventions intended to control the numbers of yellowlegged gulls and the eradication of invasive black rats and European rabbits, we argue that a reintroduction of *T. lepidus* from another insular population should be equated.