

Evidence of sympatry between the endangered Réunion Island day gecko *Phelsuma borbonica* and the introduced gold dust day gecko *Phelsuma laticauda* on Réunion Island

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The gold dust day gecko *Phelsuma laticauda* (Boettger, 1880), a species with a conservation status of Least Concern in its native Madagascar, has been introduced into several oceanic islands in the Indian and Pacific Oceans (Ota & Ineich, 2006; Gerlach et al., 2011; Goldberg & Kraus, 2011; Augros et al., 2017; Moutou, 1995). The species is considered a competitor (Lund, 2015), a predator (Gehring et al., 2010) of other Gekkonidae, and a potential source of endoparasites (Goldberg et al., 2003). Introduced in the west of Réunion Island (Indian Ocean) in 1975 (Moutou, 1995), *P. laticauda* is now found all around the island, up to 600 m a.s.l. (Sanchez, 2016; Sanchez & Caceres, 2019). To this day, only two of the seven known native reptile species of the island remain (Arnold & Bour, 2008; Cheke & Hume, 2008; Cole & Sanchez, 2021). These two are species of day gecko: *Phelsuma borbonica* Mertens, 1966, classified by the IUCN as Endangered (Sanchez, 2021a) and *Phelsuma inexpectata* Mertens, 1966, classified as Critically Endangered (Sanchez, 2021b). These two threatened native day geckos represent a significant conservation challenge. The endemic *P. inexpectata* was observed in sympatry with the exotic *P. laticauda* and they seemed to be in competition (Deso et al., 2023). Here we report observations of sympatry between the introduced *P. laticauda* and the other native day gecko of Réunion Island, *P. borbonica*, in a natural environment.

On the morning of 28 April 2024, during a diurnal wild photography session in Bois Blanc (east of Réunion Island, Sainte-Rose, 10 m a.s.l.), we observed evidence of sympatry between the native *P. borbonica* and the introduced *P. laticauda* (Fig. 1). *Phelsuma borbonica* is characterised by its brown and blue body colours, and *P. laticauda* by a golden yellow dorsal colouration with three red stripes on the lower part of the back (Sanchez & Probst, 2012). The event took place on the fleshy rachis of the native *Pandanus utilis*, which is part of the habitat of the native gecko. Several individuals of both species were observed feeding at the same time on the same infructescence.

This observation is the first description of sympatry between *P. borbonica* and a species of the same genus. Cases of sympatry between exotic and native species of the genus *Phelsuma* on Mauritius have led to the extinction of native populations (Buckland et al., 2014). In its native range, *P. borbonica* does not live in sympatry with other species of the



Figure 1. Adults *Phelsuma laticauda* (left) and *Phelsuma borbonica* (right) feeding on the same fleshy rachis of *Pandanus utilis*

genus *Phelsuma*, unlike *P. laticauda*. Therefore, *P. borbonica* may be less well predisposed to interspecific competition, in particular competition for food resources and basking sites. Further studies are needed to better understand this competition, which may include direct physical interference as in other cases of interspecific competition with geckos of the genus *Phelsuma* (Lund, 2015; Deso et al., 2023). This native population of Bois Blanc is one of the last remaining along the coast and is therefore a conservation and heritage issue of concern. This relict coastal population also exhibits a distinctive brown colour pattern on the head, which appears to be characteristic of the Sainte-Rose coastal area (Sanchez & Caceres, 2019; Cornuault et al., 2024). However, the Bois Blanc population is not currently considered by site managers (ONF, 2016), a situation that poses a serious threat to the preservation of the species, especially in a habitat that is increasingly degraded for the gecko.

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