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Presence of the Island Least Gecko, *Sphaerodactylus sputator*, confirmed for Saba, Caribbean Netherlands

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Accurate assessment of species ranges is important not only for conservation planning but also for our understanding of their ecology and evolution (e.g., Kodric-Brown and Brown, 1993; Carlton, 1996; Blackburn and Gaston, 1998; Rondinini et al., 2006). Although several Lesser Antillean reptile groups show high levels of endemism, with most islands hosting at least one local endemic species (Lazell, 1972; Hedges et al., 2009; Tucker et al., 2017), it is not uncommon for *Sphaerodactylus* geckos to range across multiple islands (Schwartz and Henderson, 1991; Thorpe et al., 2008; Surget-Groba and Thorpe, 2012; Yuan et al., 2020). The Island Least Gecko, *Sphaerodactylus sputator* (Sparrman, 1784), is known to occur on the islands of Anguilla, St. Barthélemy, St. Eustatius, St. Kitts, St. Martin, and Nevis, as well as their satellite islands (King, 1962; Schwartz and Henderson, 1991; Malhotra and Thorpe, 1999; Powell et al., 2005; Questel, 2012, 2018). Here, we confirm the presence of *S. sputator* on Saba, from where, to the best of our knowledge, the species has not previously been reported (Schwartz and Thomas 1975; Schwartz and Henderson, 1991; Powell and Henderson 1996; Powell et al., 2005; Powell and Bauer 2012; Powell and Henderson 2012).

In October 2021, we photographed two individuals of *S. sputator* on Saba and obtained whole tail tips (Fig. 1). One individual was observed at the Queen's Garden Resort and Spa (17.6305°N, 63.2470°W) and one along the road to the Middle Island Trailhead (17.6296°N, 63.2532°W; Fig. 2). Both geckos were collected from gaps within human-constructed stone retaining walls. We observed several additional individuals at these localities but did not collect genetic samples from them. We identified them as *S. sputator* in the field using the diagnostic morphological characteristics listed by King (1962), including body size, scale structures, dorsal patterning, and pupil shape.

To confirm field identification, we obtained sequence data for both individuals. We amplified a 345 base pair (bp) fragment of mitochondrial *12S* rRNA using primers H1478 (5'-TGACTGCAGAGGGTGACGGGCGGTGTGT-3') and L1091 (5'-AAAAAGCTTCAAACTGGGATTAGA-TACCCCACTAT-3') (Kocher et al., 1989). PCR conditions followed Yuan et al. (2020). Sequencing was obtained using an ABI 3130 automated DNA sequencer (Applied Biosystems, Foster City, California, USA), and sequences were edited using 4Peaks v.1.8 (Nucleobytes, Aalsmeer, The Netherlands) and aligned using MUSCLE (Edgar, 2004). BLAST confirmed our field identification of *S. sputator* with the best match to an individual from St. Eustatius (GenBank MT683096; $E = 8 \times 10^{-177}$; 99.71% identity), as reported in Yuan et al. (2020).

Species with ambiguous native and introduced status, so-called cryptogenic species, are a longstanding problem for conservation, community ecology, and biogeography (Carlton, 1996). Cryptogenic species are particularly common in the Lesser Antilles because its insular systems have been anthropogenically connected continuously since before recorded history (Wing, 1989; Kaiser, 1992; Olson and López, 2008; Camargo et al., 2009; Giovas, 2019; Rabinow and Giovas, 2021; Yuan et al., 2022). Although we confirm the presence of a population of *S. sputator* on Saba, our data do not allow us to resolve its cryptogenic status. While *S. sputator* has not been reported on Saba in field guides or the scientific literature, two specimens collected in 1963 (MCZ R-86677–78) exist in the collections of the Museum of Comparative Zoology (Harvard University, Cambridge, Massachusetts, USA). Both were collected at the same locality, listed as the 'road to The Bottom'. This is presumably the road between Fort Bay and the Bottom (17.6207°N 63.2495°W). However, the accompanying GPS coordinates were georeferenced by the MCZ using

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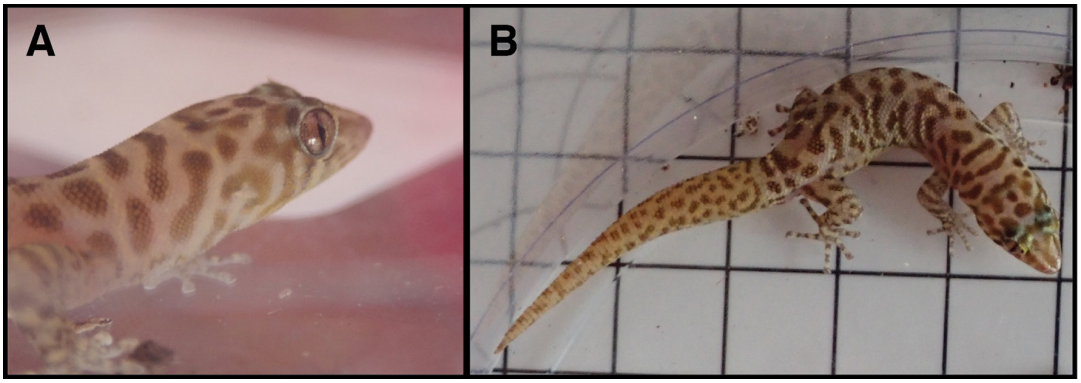

Figure 1. Adult unsexed *Sphaerodactylus sputator* from Queen's Garden Resort and Spa, Saba, Netherlands Antilles. (A) Head in posterolateral view. (B) Dorsal view. The squares of the grid are 10 mm by 10 mm and the specimen's total length is ~70 mm. Photos by Michael L. Yuan.

GEOLocate and not by the original collectors. Thus, there is some uncertainty regarding the precise locality. We confirmed the identification of both MCZ specimens based on diagnostic morphological characteristics (King, 1962). Thus, museum records indicate that the species has been present on Saba at least since 1963 even though there exist no literature records to our knowledge (see Schwartz and Thomas, 1975; Schwartz and Henderson, 1991; Powell and Henderson, 1996; Powell et al., 2005; Powell and Bauer, 2012; Powell and Henderson, 2012).

Reports of additional island localities for *Sphaerodactylus* species are not uncommon, but these new records are often from uninhabited satellite islands (Questel, 2012, 2018). Still, the lack of older *S. sputator* records on Saba is puzzling, given the longstanding human habitation and biological interest in the island. Thus far, *S. sputator* has only been confirmed to occur on Saba in the area surrounding The Bottom, a human settlement (Fig. 2). Furthermore, we only observed individuals associated with human construction, particularly retaining walls, potentially supporting an introduced origin. The presence of *S. sputator* in 1963, the year the island's airport began operation, indicates that the airport was unlikely to have been the site of introduction if the species was indeed introduced. Although the 1963 specimens were probably collected along the road to Fort Bay, the port of Fort Bay itself was not constructed until 1972 after *S. sputator* was already established. Thus, if the species was introduced, its introduction likely occurred via Ladder Bay, the only regular access point to the island interior prior to 1963 (Fig. 2). However, *S. sputator* does occur natively on all surrounding islands (Schwartz and Henderson, 1991; Powell et al., 2005), and further work is required to accurately assess the species' native range. In the meantime, even if it is determined that *S. sputator* is not native to the island of Saba, it may not pose a conservation concern at least for the congeneric *S. sabanus* because they occur in sympatry on other Lesser Antillean islands (Schwartz and Henderson, 1991; Powell et al., 2005).

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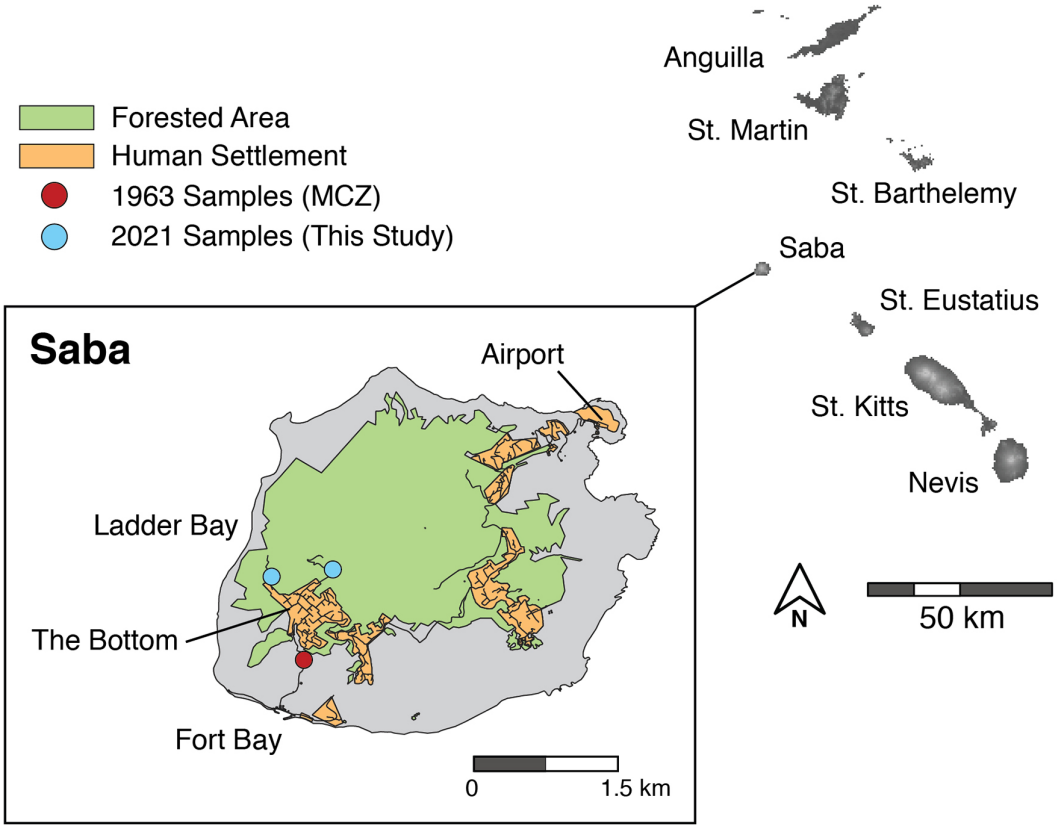

Figure 2. The range of *Sphaerodactylus sputator* includes the continuous chain of Lesser Antillean islands from Anguilla to Nevis. Only major islands are labelled, but *S. sputator* is also found on several satellite islands. The inset shows a map of Saba with all known sampling localities of *S. sputator* on the island. Human settlements are denoted in orange and all ports are labelled. All sampling localities occur around The Bottom.

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